AUG 21 1922
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Telephony

THE AMERICAN TELEPHONE JOURNAL

PUBLISHED EVERY WEEK
BY TELEPHONY PUBLISHING CORP
116 S. MICHIGAN AVE., CHICAGO, ILL.

AUGUST 19. 1922. [VOL. 83. NO. 8.]
Entered as second-class matter Sept. 4, 1908, at the post office at Chicago, Ill., under act of March 3, 1879.

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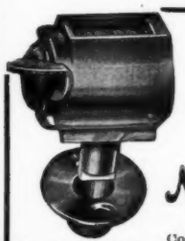

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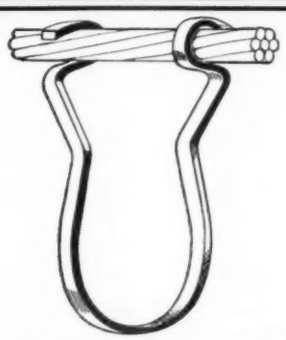

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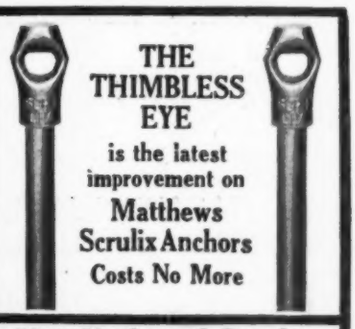

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Telephony

THE AMERICAN TELEPHONE JOURNAL

Comprising Telephony, American Telephone Journal, Telephone Weekly, Telephone Magazine, Telephone Securities, The Telephone, Sound Waves

PUBLISHED WEEKLY BY TELEPHONY PUBLISHING CORP.
116 S. Michigan Ave., Chicago

H. D. FARGO, President and Treasurer.
G. M. ALLEN, Mgr., Copy Dept.
S. R. EDWARDS, Editor and Secretary.
J. R. HASTIE, Vice-President and Advertising Manager.
H. D. FARGO, Jr., Western Advertising Manager.

Entered as second-class matter September 4, 1908, at the post office at Chicago, Ill., under act of March 3, 1879.

Volume 83
Number 8

CHICAGO, SATURDAY, AUGUST 19, 1922

Subscription—10 Cents a Copy
$3 a Year U. S., Cuba and Mexico
$4 Canada, $5 Other Countries

CURRENT OPINIONS AND COMMENTS

Here is proof that a telephone company can get local financial backing in order to solve a competitive situation, if it goes at it the right way:

At St. Edwards, Neb., the Skeedee Telephone Co. and the Northwestern Bell exchange have been competing for the local patronage several years, each desiring to buy the other out and to maintain the single service which the people wanted. Having the support that comes from local ownership, and lower rates, the Skeedee company obtained most of the business, and the Bell finally agreed to sell.

The railway commission signified its willingness to approve such a consolidation, whereupon the men in the Skeedee company arranged to borrow the money at a local bank with which to make the deal. The local stockholders put up their personal notes at the bank, and the notes will be paid by the company issuing stock (approved by the commission) to cover the money advanced.

This instance proves the contention frequently made in these columns that with proper management a locally-owned telephone company can obtain local capital with which to clear up such situations.

* * * *

It is really surprising to note the recent developments that show a growing appreciation of the value of local ownership. The campaign boosting so-called "customer-ownership" of large utility corporations is nothing more nor less than an outgrowth of the same idea.

The Commonwealth Edison Co. of Chicago and the New York Telephone Co. are notable examples that come to mind. They seized the opportunity to get capital from their employes and patrons, and by doing so expect to build up their public relations to a corresponding extent.

* * * *

It so happens that crusades are being made just now against get-rich-quick schemes that lure hard-earned savings from people who can ill afford to lose, and this movement should help turn such investors to local utilities. Managers of service companies should take advantage of this favorable opportunity, and spread helpful publicity along this line before their communities.

The Illinois Committee on Public Utility Information included a good argument in a recent bulletin that covers the case exactly. It is appended so telephone companies can make use of it in their local situations:

* * * *

"We need not worry about the rich widow who is taken in by a spiritualistic confederate of a ring of crooks, or the retired manufacturer who drops $50,000 or so in a stock swindle.

"What we should worry about is the small wage-earner who is concerned with the future of his family and determined that his children will not have to put up with the hardships he had to suffer. He skimps and saves. He makes up his mind to invest his money so as to have an income that will make it unnecessary for him to be dependent upon any one in his old days.

"He gets a nice little nest-egg together. It is not merely a little hoard of dollars. It represents the sweat of toil, frequently the suffering, that comes from depriving himself of all but the necessities of life. Then comes the smooth promoter—and the nest-egg is gone.

* * * *

"The small merchant, the corner grocer, the butcher, the baker, the candlestick-maker, all these are interested in the campaign to wipe out the fraudulent stocks and punish those who would sell them. Much of the money that is whisked away would have found its way eventually into the tills of the neighborhood shop-keepers.

"Properly invested in home enterprises, such as the securities of the electric, gas or telephone company, it would yield dividends or interest that still further would swell the local reservoirs of credit. It would not only do this but would assist in further development of the home town, and through increasing the earning possibilities of the family, would make life more pleasant.

"Only through concerted effort against get-rich-quick swindlers can they be driven out of business, and the small investor educated to invest his savings in safe and proper investments."

* * * *

A committee of Chicago aldermen are touring Europe—at public expense—investigating municipal operation of street-

car and other utility service. There was much criticism of taking the tax-payers' money for such a junket, but the advocates of municipal ownership did not join in the criticism because they hoped it would help their cause.

Now the cables bring an interview from one of the committee (Alderman Toman) in which he says: "Advocates of municipal ownership certainly have been disillusioned in Europe where the street cars, subways and telephones owned by the government are unable to give decent service and all are losing money. The municipality might give two-cent street car rides but the tax-payers eventually would pay the losses."

Of course, now the public ownership advocates, led by the Hearst newspapers, are roasting the alderman for his backsliding and saying he doesn't know what he is talking about.

* * * *

One of TELEPHONY'S subscribers, who owns a number of farm lines, writes: "I was interested to read in a recent issue some observations on the extension of utility service to farms, particularly electric light and power. It will come in time, and I believe it will discourage the tendency to municipal ownership of utilities, which is urged in some sections.

"The telephone is the only public utility that is in general use on the farm today. Electricity, and maybe gas, are still to come.

"The reason why the extension of utility service to the farms is likely to block municipal ownership, in my opinion, is because no city or town would want to tax itself to give service to surrounding rural territory. I enclose a bulletin from the Missouri Bureau of Public Utility Information touching on the subject."

* * * *

The bulletin says:

"The relative merits of municipal and private ownership (subject to state regulation) of gas, water, telephone, electric current and street railways have long been a much discussed subject. Advocates of private ownership hold that municipal ownership and operation is primarily more expensive than private ownership, because, politics and its inefficiencies are inseparable from municipal ownership.

Advocates of private ownership also hold that because a municipality cannot give service to cities, industries or farmers outside of its city limits, it cannot effectively serve itself; that a city should take care of its trade district, outlying suburbs, and of industries and farms outside of its limits, and that suburbs and neighboring smaller cities, industries and farmers whose interests are in the city where they trade cannot be served by municipally owned utilities. Furnishing service to farms is one of the most puzzling problems with which a public service company must deal.

So far, serving the farms has not paid the companies even where the farmers pay for the lines and make presents of them to the companies. Farmhouses are scattered, rates must be high, maintaining long lines with relatively few customers thereon is very expensive.

In times of depression, such as in 1920-21, business is dull and the farmer is hard up. But the farmers are demanding service. When prosperous, they organize their own mutual service companies, even at great loss, as experience in mutual telephone lines has taught them.

The public service companies feel that it is their duty and interest, whenever possible, to furnish service upon demand. They are studying the problem of farm service hard.

Is it, or is it not to the interest of a city to serve its suburbs, neighborhood and district, insofar as is humanly possible, and the outlying towns, industries, farms, etc., with telephone, electric light and power lines, gas and water pipes and electric railways? Can municipal ownership enable a city to do these things as private ownership does them?"

* * * *

Evidently the answer is "No." If the rural districts are to have utility service soon, they will get it from private enterprise rather than municipal systems.

Rate Powers In Commission Laws

Public Utilities under Commission Laws in General Have Substantially the Same Rate Making Powers Which They Had at Common Law—Address Before the Section of Public Utility Law of American Bar Association

By N. T. Guernsey

Vice-President and General Counsel, American Telephone & Telegraph Co.

There is widespread misconception as to where the commission laws of the various states leave the power to make the rates to be charged by public utilities. This misconception, not only in the minds of the general public but also in those of many of the officials and lawyers having to do with these matters, is perhaps most frequently voiced in the statement that these commission laws have taken away from the utilities the power to make rates and have made this one of the functions of the commissions.

This error is probably attributable more to the failure of the members of the bar to carefully analyze and interpret these laws than to any other single cause.

The fact is that there is nothing to justify this misconception. The commission laws in general leave in the utilities substantially the same rate making powers which they had at the common law; that is, they leave in the utilities the primary power to make their rates, subject to the rule governing them at common law and re-enacted in these statutes, that their rates shall be just and reasonable and not discriminatory.

Under these statutes, authority on the part of commissions over specific rates is limited; it does not arise until it has been made to appear that the utility in its rate making has overstepped the just and reasonable or indiscriminatory rule established by the statute. In such cases, but only in such cases, the commissions are vested with authority to make the rates which will put utility back within the rule established by law. This is sound and reasonable regulation, to which there can be no just objection.

The question which has been suggested is purely one of statutory construction. Questions of policy involving inquiries as to what the rate making powers of the commissions or of the public utilities should be are not involved. Concretely, the inquiry is solely: Where do these laws leave these powers?

It must be determined by a study of the laws themselves. Neither the courts nor the commissions can enlarge the powers of the latter or diminish their duties. The commissions are the creatures of the statutes of the various states. Their powers and their duties must be found in these statutes.

A rate is nothing more nor less than a charge made by a utility for a service which it sells. It is entirely analogous to the price which a merchant or a manufacturer places upon the merchandise which he offers to the public.

At the common law, before the enactment of any regulatory statutes, the utility had the same right to fix the price of what it offered for sale as an individual had to fix the price at which he offered his commodities, subject only to the rule that its prices or rates must be just and reasonable and not discriminatory. Subject to these rules the discretion of the utility in fixing its rates or prices was complete.

It is believed that the following analysis will be accepted as sound:

1. Prior to the enactment of these regulatory statutes, the rate making powers of the utilities were plenary, subject to the common law rule that they be just and reasonable and indiscriminatory.

2. This plenary power to make rates has continued in the utilities, unless it has been taken away or restricted by statutory enactment. The rate making power was originally in the utilities. It could not automatically dissipate itself.

3. Therefore, the solution of this question lies in an examination of the rate provisions of these statutes in order to determine to what extent, either directly or by conferring power upon the commissions, they have limited the common law power of the utilities to make rates.

Such an examination will disclose that fundamentally, with very few exceptions, the framework of these statutes is the same. They leave in the utilities the primary power of rate making.

They declare as the rule which shall govern the utilities in the exercise of this power, the common law rule that rates must be just and reasonable and indiscriminatory; and what they add to the common law is the remedy provided by authorizing the commission where they find that this rule has been violated, to establish just and reasonable and indiscriminatory rates which shall bring the utility back within the rule.*

Before discussing any of their details it is worth while to have a broad conception of the scope and purpose of these regulatory enactments. Leaving out of account some incidental matters, their purpose is not to create new rights in either the utility or its patrons, but rather to provide adequate machinery for the enforcement of the old rights of each at the common law.

The great things which are at the foundation of these statutes are rates and service. Substantially all of their provisions relate directly or indirectly to one or the other. These are the matters, and the only matters, of concern to the public.

As to rates, taking the parties where they were at the common law—that is, recognizing the obligation of the utility to charge just and reasonable rates which are not discriminatory, and the right of its patrons to have such rates—the statutes confirm this status and attempt to provide machinery for the enforcement of the rights of both parties.

As to service also they take the common law obligation to furnish efficient and adequate service and the common law right to such service and, confirming these rights and obligations, again attempt to provide machinery for their enforcement.

The remedies as to both rates and service at the common law were deemed inadequate. The commission laws were intended to meet this inadequacy by providing new remedies. They were not intended to take away old fundamental rights or to create new ones. If this broad conception of their purposes and effect is kept in mind, it will substantially aid in their construction.

Vice-President and General Counsel Guernsey Argues That State Statutes Generally Leave in the Utilities the Primary Power of Rate Making.

Lack of time entirely precludes attempting to demonstrate the correctness of what has been said by a consideration of each of the laws enacted by the 45 states which have created commissions.

Fortunately, in their fundamental provisions these laws closely resemble each other so that one may be taken as typical. For this purpose the Illinois Commerce Commission law has been selected because it is fairly representative of these laws generally, and because its recent enactment (1921) tends to negative the suggestion of any change in legislative policy.

Its establishment of the rule to govern the utilities (section 32) is:

> All rates or other charges *made, demanded* or received *by any public utility*, or by any two or more public utilities, for any product or commodity furnished or to be furnished or for any service rendered or to be rendered, shall be just and reasonable. Every unjust or unreasonable charge made, demanded or received for such product or commodity or service is hereby prohibited and declared unlawful.

Another section inhibits discrimination. After providing in sections 33, 34, and 35 for filing rates and for schedules and prohibiting the undertaking of a service for which no rate has been filed, the law proceeds in section 36 as follows:

> Unless the commission otherwise orders, no change *shall be made by any public utility* in any rate or other charge or classification, or in any rule, regulation, practice or contract relating to or affecting any rate or other charge, classification or service, or in any privilege or facility, except after 30 days' notice to the commission and to the public as herein provided.

Section 37 requires the utility to charge only the rates shown by the schedules on file and in effect at the time.

Recurring now to section 32, its statement that all rates made by any public utility shall be just and reasonable, and its inhibition of every unjust and unreasonable charge are merely declaratory of the common law. This rule, which prevailed before the first commission law was enacted, has been re-enacted by every regulatory statute which has touched this question. Its re-enactment has made no change in the law.

Note the use of the words *"made . . . by any public utility"* in section 32. The effect of this section is not to take away the power of the utility to make rates; on the contrary, c l e a r l y recognizing this power, what it does is to lay down the just and reasonable rule to govern the utility—to regulate the utility—in its exercise of this power. Thus far, the statute leaves the utility's power as to rate making unchanged.

The provision as to filing, and what goes with it, are merely incidental to the main question and need not be discussed here. Their object is to provide a public record which will enable the commission and the patrons of the utility to know just what the legal rates are, and to prevent discrimination.

Passing to section 36, there is found the provision for changing rates. Fundamentally, it is that no change shall be made without 30 days' notice to the commission and to the public, given as provided in the act.

Here again note that the language is that "no change shall be *made by any public utility*" except upon this notice. It is the utility, not the commission, that is to change the rate.

Aside from a requirement that without the commission's consent the utility shall not establish rates higher than those in force when the law took effect, these portions of sections 32 and 36 are all that there is in this statute directly relating to the rate-making power of the utility.

*There are some minor exceptions to the general statements contained in this paper. They do not affect the general discussion and are ignored.

There is nothing which purports to take this power away. Instead of taking it away, the theory of the statute is to recognize it and to regulate its exercise by the utility through the establishment of this just and reasonable and indiscriminatory rule, and the provision of means for its enforcement. Fundamentally, the statute does not attempt to change the rate-making power of the utility, but seeks only to regulate its exercise.

With this primary power of rate-making left undisturbed in the utilities, what power over rates does the statute confer upon the commission?

Having laid down the general, just and reasonable rule, having prescribed compliance with it by the utilities, to make the rule effective and so render the statute complete it was necessary to cover the situation which would arise in cases of non-compliance, where the rates made by the utility violated this rule. There must be authority to investigate the rates fixed by the utility to determine whether they are lawful; if they are found to be unlawful, there must be power to substitute lawful rates.

Turning to the statute, it appears that this is, in fact, the power which is conferred upon the commission. Its power to determine specific rates only arises in cases where the rate made by the utility is in violation of the statute, so that the exercise of the regulatory power has become necessary in order to enforce the public right to a just and reasonable rate.

This suggests the reason for the provision for a notice of any changes made by the utility, which has already been mentioned. It is to afford the commission and the public an opportunity to determine whether the rate which a change proposes is in compliance with the rules governing the utility in its rate making.

The statute provides (section 36) that when any schedule of rates is filed, the commission shall have authority, either upon complaint or upon its own initiative upon reasonable notice, to enter upon a hearing concerning the propriety of such rate or other charge, classification, contract, practice, rule or regulation. The statute proceeds:

> On such hearing the commission shall establish the rates or other charges, classifications, contracts, practices, rules or regulations proposed, in whole or in part, or others in lieu thereof, which it shall find to be just and reasonable.

Note that what the commission is to inquire into is the propriety of the rate in question. In the use of the word "propriety" here, the statute is unusual. Most frequently the statutory provision is, in substance, that the commission is to ascertain whether the rates in question are unjust or unreasonable or discriminatory, or otherwise unlawful. This difference, however, is one of form, not of substance.

The statutory rule is the test of propriety. Clearly, the commission may not find impropriety in a rate that conforms to the rule established by the legislature for the government of the utility in its rate making; that is, if a rate is just and reasonable and indiscriminatory, the commission may not find impropriety in it. To do this would be for the legislature to set up one rule and for the commission to nullify it by setting up another and different rule.

The last phrase of the extract made from the statute removes any doubt as to what the commission's function is. The commission is to make this inquiry as to propriety and to approve the proposed rates if they are lawful. It is authorized to substitute other rates for them only in the event that this inquiry shows that the proposed rates are in violation of the regulation established by the legislature.

The beginning of an investigation by the commission under this section (36) automatically suspends the rate, and this suspension may be extended to an aggregate period of 120 days plus six months, but not longer. The purpose of this suspension provision is, of course, to provide an opportunity to ascertain, before the rates go into effect, whether they comply with the legislative rule.

But the fact that provision is made for a suspension confirms the construction of this statute as leaving the primary rate-making power in the utility. If the rates had no vitality when made and filed by the utility, they could not automatically go into effect in the absence of a suspension, and any suspension provision would be wholly unnecessary. If the rates were without vitality of their own, the limitation upon the power of the commission to suspend could have nothing upon which to operate.

The fact that when the rates have been established and are filed by the utility, no action on the part of the commission is necessary in order to make them operative, but, on the contrary, affirmative action by the commission resulting in a suspension is required to prevent them from becoming operative, completely negatives any possible contention that the rates are not in fact made by the utility.

The statute clearly contemplates that the utility shall make the rates in the first instance, and that the rates as made by it shall go into effect if they are not unjust or unreasonable or indiscriminatory and so do not violate the statutory rule.

Section 41 of the statute covers the situation which arises when an existing schedule of rates is questioned by a complaint or by a hearing initiated by the commission. In such a case if the commission, after the hearing, finds that the existing rates are unjust and unreasonable or in any wise unlawful, the commission is authorized to determine the just and reasonable rates to be observed. This section and section 36, in general, determine the power of the commission over rates.

It is a limited power conditioned upon the finding that proposed or existing rates made by the utility are unlawful because in violation of the rules prescribed by the statute. Unless this illegality exists, the power of the commission to determine specific rates does not arise. When it does exist, the commission may determine the rate required by the statute under the circumstances in question.

Summarizing this statute it may be said:

1. That the primary rate making power is left in the utilities. The requirement, common to most of the statutes, that all rates shall be just and reasonable and not discriminatory does not take away from the utility the power to make rates, but simply lays down a rule governing the exercise of this power. The rule presupposes the existence of the power.

2. In general, there are two classes of cases—and only two—in which the commission may determine rates:

(a) Where it appears after a hearing that a rate proposed by the utility is unjust and unreasonable or discriminatory and so in violation of the rule of just and reasonable and indiscriminatory rates established by the statute; and,

(b) Where it appears after a hearing upon a complaint, or upon an investigation initiated by the commission, that some existing rate is unjust and unreasonable or discriminatory and so in violation of this statutory rule.

In some states the statutes provide that changes or increases in rates made by the utility must be approved by the commission before becoming effective. Here it is believed that if the proposed rate comes within the statutory rule established by the legislature—that is, if it is just and reasonable and not discriminatory—then it is the duty of the commission to approve it.

The purpose of such provisions, like the purpose of the suspension provisions, is to provide an assurance that the new rate complies with the law before it becomes effective. In such cases the commission may not arbitrarily approve or disapprove. If it disapproves, its disapproval must be founded upon a finding that the proposed rates violate the legislative enactment and would, therefore, be unlawful.

These statutes leave in the utility the rate-making power so long as that power is exercised in accordance with law. They vest in the commissions the power to determine rates only to the extent that this is necessary to correct rates made by the

(*Continued on page* 38.)

Making a Real Book of "Telephony"

Many Telephone Men Preserve the Issues of Telephony for Reference Purposes —Here Is a Detailed Description of a Practical and Inexpensive Method of Binding the Issues in a Permanent Form—It Can Be Done in a Short Time

By H. B. Couch

Many times the mind recalls an item read in TELEPHONY but the copy has been mislaid. How much more orderly and convenient it would be to have a bound copy of each volume! With very little time some member of the operating force can bind up the scattered copies of TELEPHONY into a neat book, a credit to any library.

First. Assemble all copies of a volume, together with the index, from Nos. 1 to 26 inclusive. Remove the staples and the covers—also the advertising sections if you like—stack the copies with the last number of the volume at the bottom of the pile. The index may be placed either at the top or bottom, depending whether it is desired to have it in the front or back of the bound volume.

Second. Even up the back and top edges, and place the volume between two boards with the back extending ¼ inch.

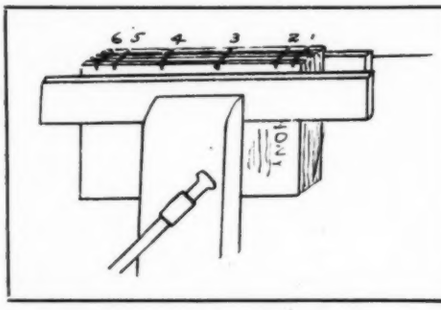


Fig. 1. The Preparatory Step.

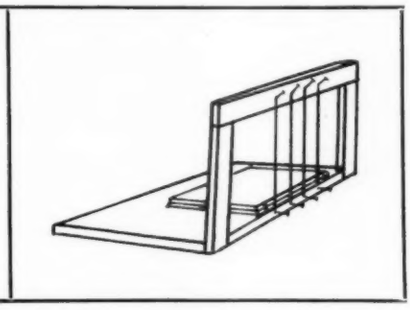


Fig. 2. The Sewing Table.

Clamp the whole in a bench vise with the back up, Fig. 1. Two cabinet clamps may be used.

Third. With a rule lay off ¾ inch from each end, making a pencil mark across the back. Next, lay off 1¾ inches from each end; then divide the remainder of the back into three parts, making a total of six lines across the back.

Fourth. Saw a groove into the back 3/16-inch deep over each of the six pencil lines. Now remove the volume from the vise.

Fifth. Construct a sewing table, Fig. 2, to hold the cords and volume as it is being sewed. Attach to a 12-inch by 24-inch board two uprights, 2 inches wide by 15 inches long, at the corners of one side of the board. Nail a 2-inch strip across the top of the uprights. Drive shingle nails in the base and upper strip the same spacing as the saw cuts. Run strong cords—four-ply hemp is best—vertically between the base and upper nails for sawcuts Nos. 2, 3, 4 and 5 only.

Sixth. Take copy No. 1 and place it face down on the table with the back edge against the four sewing cords in sawmarks 2, 3, 4, and 5.

Seventh. In sewing, a large needle and strong thread are used. Divide the section at the center and, with the left hand holding it open and against the cords, pass the needle in sawcut No. 1 with the right hand and out at sawcut No. 2 with the left hand around the cord, and in at sawcut No. 2 again, out and in at Nos. 3, 4, and 5, and out at No. 6. Now let the section lay flat and draw the slack out of the thread which should bring the cords into the sawcuts.

Eighth. Place the second section, No. 2, on the first section and proceed by entering sawcut No. 6 and return to No. 1, by going out and in at each sawcut, where you should find the tail of the thread. Tie the tail and thread to hold the sections, but do not cut the thread from the needle. Now place third section on the second, and work through to sawcut No. 6 and tie to sections 1 and 2 with a lock stitch by looping under the thread between sections 1 and 2 at sawcut No. 6, Fig. 3. Follow this system until the last section is attached. Cut the cords from the nails so as to have them at least three inches long.

Ninth. The book is now ready for "backing." If the edges are uneven, your printer can trim them. Place the book between two boards with the back projecting about 3/16-inch, as in sawing in the back. Place the whole in a vise and compress firmly. The back should take on a rounded outline; if not, remove from the vise and give the front edge a slight hollow by holding the center and drawing forward the front and back sections. With a hammer, shape the edges over the boards by working from the center of the back, Fig. 4. Pull the cords tight through the sections.

Next, apply a thin coat of glue on the back, working it well into the back but take care to keep it off the cords. When the glue is no longer sticky, but not hard, the back may be pounded again until the back is well rounded and the edges well down on the boards. Allow to dry for several hours, or over night.

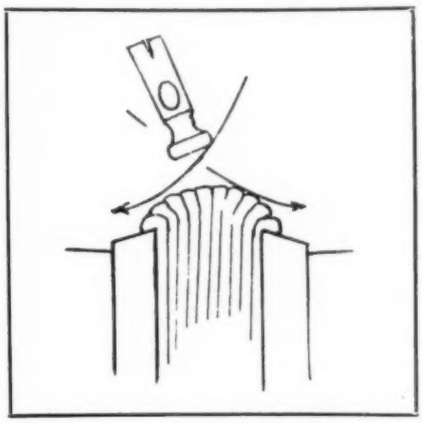


Fig. 4. Shaping the Back.

Tenth. Secure cardboards the size of the cover, such that there will be a projection of 3/16-inch over the ends and front. Two or more thin cardboards may be glued together to get the desired thickness of about ⅛ of an inch.

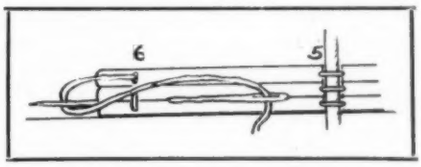


Fig. 3. Sewing the Sections Together.

Eleventh. After the back is dry, the boards may be removed and the cardboards placed on the sides and the cords laced into them. In line with the cords and about ½ inch from the back, push an awl or nail through the cardboard and then ½ inch farther in punch another hole from the inside of the cover. The cords

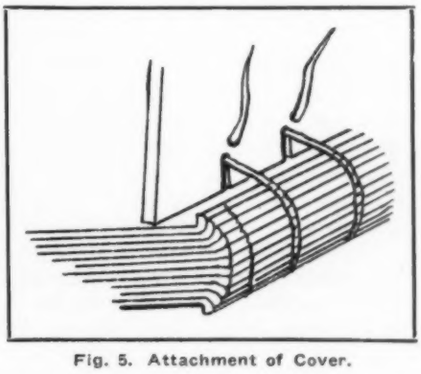


Fig. 5. Attachment of Cover.

are pulled in with a little glue, pounded down to make smooth, and allowed to dry. A groove may be cut in the cover, under the cords, for them to lie in, Fig. 5.

Twelfth. Secure from the auto top, or furniture repair shop, a piece of leatherette of such size that the back and corners may be cut out. The back strip

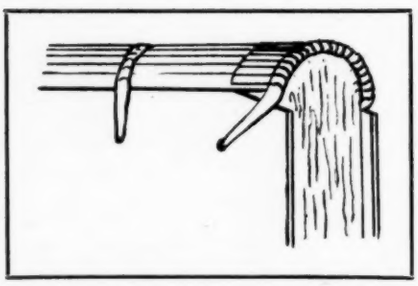


Fig. 6. Fastening Head and Tail Cords.

should be four inches wider than the distance from the back edge of cover to cover, being about three inches, making a total of seven inches wide, and 1½ inches longer than the length of the cover so as to have ¾-inch for the turn under at top and bottom. The corners may be cut from two 3-inch squares. Cut each square diagonal, thus making the four pieces for the corners.

Thirteenth. Head and Tail Cords. Secure two squares of calico or other striped material, the sides being equal to the thickness of the back. Fold each square over a cord so that the stripe crosses the cord. Glue this to the back so that the portion holding the cord projects over the end, Fig. 6—one for the top and the same for the bottom. Next, secure some heavy paper, such as hardware stores use, as long as the back and wide enough, when folded three times, as to just cover the back.

The center portion is glued to the back and well rubbed down. The overlapping edges are glued together, Fig. 7. This forms a flat tube over the back to which

Fig. 7. Covering of the Back.

the leather covering is attached. Cut the folded edge back ¾-inch from each end to allow the cover leather to enter the tube when turning under. Clip the corners of the coverboards as shown in Fig. 6. It will allow the covers to open better.

Fourteenth. Covering. Lay off a 2-inch space on each cover from the back with a penciled line. The leather for the back should extend from line to line around the back. Attach with glue. Turn the edges over the cover and tuck the ends into the tube back of the head and tail cords. With a knife, cut the backing paper to make room for the leather. Place under a weight, or in an old letter press, to dry. Not much pressure is required.

Lay off the corners 1½ inches each way and draw a line where the leather comes to. Glue up the leather, apply up to the line and fold the edges under the cover. The corner of the leather may be clipped out so as to make less bulk under the cover. Lay a folded sheet of newspaper between the cover and the book to keep the glue from sticking to the first and last pages.

The remainder of the cover may be bound with cloth, heavy brown paper, or the front and back cover pages of TELEPHONY.

Fifteenth. End Sheets. Fold over a sheet of heavy white or brown paper to the size of the book. Glue or paste one side or half the sheet and attach to the inside of the cover. The other half of the sheet makes a flyleaf. With the cover open, smooth the paper down over the

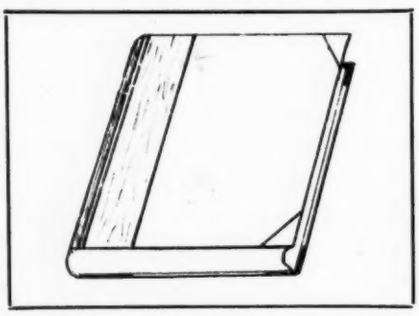


Fig. 8. The Completed Job.

hinge and down onto the book. The fold should come at the hinge.

A little paste or glue will have to be applied along the book near the hinge so as to attach the flyleaf. Allow to dry with the cover open. Finish both covers and ends the same way.

You now have a well-bound book. You will find the work very interesting, and you will be proud of the book you have bound.

Concrete Poles of a New Type in A. T. & T. Experiment.

S. K. Baker, in "Long Lines," tells about some concrete poles which were installed by the American Telephone & Telegraph Co. as an experiment, in the Chicago-Minneapolis line just south of Milton Junction, Wis. The poles were made in Milwaukee of reinforced concrete of a type known as "Hollowspun."

The process employed in manufacturing these poles is described in an interesting manner by Mr. Baker. Centrifugal force is used to obtain a dense and uniform material. Instead of casting the poles, a cage of reinforcing steel is first made and placed in a metal form which is the exact shape of the pole desired.

Proper inserts are left in this form to provide gains in the pole and holes for putting in standard pole steps and crossarm bolts. Wet concrete is then poured in and the form revolved in a horizontal position by a special machine at a very high rate of speed.

The revolving process, which lasts for several minutes, is called spinning. The centrifugal force developed causes the concrete to be compressed against the inside of the form, producing a dense structure having a hole of about four or five inches diameter through the entire length of the pole. The walls, however, taper and are somewhat thicker at the butt than at the top.

The excess water, being lighter in specific gravity than the concrete mixture, works to the center during the spinning process and is poured off when the form is removed from the machine. The form with the pole in place is heated for an hour or so, after which the pole is removed from the form and allowed to harden. Before shipment, the hole in the top is plugged with concrete.

The steel reinforcement cages are made in a special loom in which the longitudinal bars are accurately spaced and wound with a spiral of steel wire for reinforcement.

The cage is so placed in the form that it is retained in a definite position along the entire length of the pole, far enough away from the sides of the form so that none of the steel is less than a predetermined distance from the outside of the finished pole. The reinforcing is densest and strongest at the ground line, and this, with the extra thickness of concrete at the butt, makes a well-balanced pole.

The poles used in the installation are of two classes, designed to withstand horizontal loads of 3,000 and 4,000 pounds, respectively, applied two feet from the top. Sixty poles were installed, consisting of two 40-foot lengths, four 35-foot lengths and 24 30-foot lengths, all of the 4,000-pound class, with 30 of the 3,000-pound class, 30 feet in length.

The poles were scattered over approximately a 10-mile section of the line, the longest continuous section of concrete poles being seven and the shortest two. Locations were selected so as to place poles in exposed sections and unprotected by trees or hills, in order that a severe test might be had.

The cost of the poles was considerably higher than wooden poles at present-day prices, so that even on the basis of a very much longer life than is obtainable with wooden poles, their use in quantities would not be economical at this time. It is worth while, however, to obtain data as to the behavior of different kinds of concrete poles.

This data should, of course, include construction, installation and maintenance costs and information as to what service life can be expected.

Sidelights in Operators' Training

Real Value of Training to Both City and "Small Town" Operators—Making the Operator Feel That She Is a Paramount Factor in Field of Service—Paper Presented at Operators' School at Northern Indiana Association Convention

By Miss Margaret Norris
Instructress, La Porte Telephone Co., La Porte, Ind.

"The time has come," the walrus said,
"To talk of many things;
Of shoes and ships and sealing wax
And cabbages and kings."

And now the time has come, as the walrus said, to talk of many things—but I am going to talk of one particular thing which is interesting to all. "The Training of Operators."

When we speak of training operators, we do not mean drilling them in the technique of their *jobs* alone—rather we feel they should be first thoroughly imbued with the spirit of service. In order to give them an idea of what *we* mean by service, we can condense our meaning into three statements, namely: Telephone service is what the company sells, the subscriber pays for, and what the operator furnishes.

You can see that the place we have given the operator in the scheme of things makes her the paramount factor. In order to give good service an operator must be thoroughly familiar with the operating practices and must handle her work in accordance with the methods outlined that she may deliver good, dependable, satisfactory telephone service. The proverb says, "a good servant is never in the way but always on hand when wanted."

"Weavers of Speech," as we have been called more recently, must necessarily possess these important qualifications: Interest, self-control, courtesy, accuracy and speed.

An operator should bear in mind that in her work of service to the public, the operators represent the company more directly, perhaps, than any other of its employes, and any lack of interest on her part, affects the service seriously. If an operator is not interested in her work, she will permit her calls to hang, will not report promptly on flashing supervisory signals, and also disregard multiple markings—neither will she co-operate with the public nor with her associates.

Girls! Have you ever learned why we do not have men operators? Have you all read Mr. Vivian's book on "The Story of the Telephone?" He tells you in a much better manner than I ever could.

Under the original telephone system, when Mrs. Smith wanted to call Dr. Jones, she would ring out over her telephone; a bell would ring in the telephone office and the operator, a boy would answer. She would say, "I want Dr. Jones." He would say, "All right, wait a minute," and would ring out on Dr. Jones' line.

When the doctor would answer, the boy would say, "Just a minute, Doc, Mrs. Smith wants you." Then he would pick up a cord with a plug on either end and connect the two lines together.

When he wanted to find out whether

Margaret Norris, Who Instructs the Operators at La Porte, Ind., Understands the Viewpoint of Patron and Operator.

or not they were through with their conversation, he would simply pull out one plug and listen-in to see if the conversation was still in progress.

Naturally, such a crude method brought about many altercations, arguments, and exhibitions of temper. The boys who were operators in those days, however, did not have the disposition, patience or the courtesy that our operators of today have.

Freqeuntly some subscriber would take exception to the work of his operator and, perhaps, tell him he had not been ringing a certain number, when as a matter of fact he had, thus calling him a liar. The operator would lose his temper, and say: "Just a minute there, mister, you can't call me a liar! Meet me out back of Brown's barber shop right away and I'll show you that you can't."

The boy would leave the telephone office and go down to settle this matter of honor. This resulted in the telephone company gradually dispensing with the services of boys as operators, and the introduction of girls into their places. This shows the necessity for our present day training in self-control.

It is vitally important that a pleasant tone of voice and a courteous manner be used in dealing with the public or with another employe—for we know that telephone service is merely an impression, and the company wishes this impression to be a favorable and a lasting one.

Courtesy smoothes out difficulties, creates good feeling, and encourages the use of the service by the public. The operator, even more than any other employe of the company, is responsible for the impression of service that the public receives.

You and I know from our experience in using the telephone how important it is that the subscriber reaches the right number. A number is either right or wrong; there is no such thing as nearly right.

Mistakes are made both by the subscriber and the operator. When a mistake has been made by an operator, it is due to either carelessness or a misunderstanding. This is the main reason that we repeat numbers back to subscribers after they have given us a call. An operator must be very careful in putting up connections and ringing, should listen carefully, speak distinctly, and allow enough time for correction.

The dictionary defines speed as haste—but the proverb has it "Haste makes Waste." Speed is not mere haste. It is merely the performance of each operation quickly and accurately without requiring an excessive amount of the operator's energy and with the least possible annoyance to the subscriber. There are several ways in which an operator can gain speed—by practice, by omitting unnecessary phrases and movements, and also by individual effort.

Accuracy and speed go hand in hand—one case of slow service is likely to offset the favorable impression given by several cases of prompt service.

No matter how fair a company's rules or how reasonable its rates or even how good the service is—if the company's employes are not courteous, are not polite, or speak in an abrupt or irritable manner, that company is not likely to be on good terms with its patrons.

The public has every right to expect the highest standard of courtesy from all persons representing a public utility. An operator should not permit personal feelings of any nature to affect the disposition of her work. If a subscriber makes a request, she should respond to the request, regardless of the manner in which it was made. She should be most courteous in dealing with subscribers who are experiencing any trouble. Remember, "A soft answer turneth away wrath," and that a displeasing tone of voice antagonizes the listener while a pleasing voice always has the opposite effect.

Teamwork Is Important.

Sometimes a number of calls come in on one position on the switchboard at the same time—and the operator at that position is very busy and it is impossible for her to attend to the calls promptly. The operators at the adjoining positions on either side reach over and help answer the calls—that is if their own work will permit them to do so. So on long-reach calls—the operators assist each other by releasing and putting up cords.

Now this is what the traffic folks call teamwork. In order to handle the traffic efficiently—and to get the desired results—teamwork between operators is vital. Operators are dependent upon one another and any poor work on the part of one reacts seriously on the work of others and on the entire service.

You girls who play basketball know that without teamwork the game would be lost—and teamwork between operators goes a long way toward giving good service. And after all as one writer has so well put it. "The greatest thing in the world is not wealth or power, but service."

In an office where a magneto type of switchboard is used, the operator has to listen-in to find out if the called party has answered or if both parties have finished talking; but on a common battery type of switchboard, an operator only has to listen-in when the supervisory signals indicate that she should report in connection.

Operators should not listen-in on connection unnecessarily. When it is necessary for her to listen-in, any conversation that has been heard by her should not be repeated to *anyone*. We must remember that the law makes it an offence, punishable by fine or, imprisonment, to violate the secrecy of telephone communications.

We place great stress on the proper training of operators. Now girls, no office likes to be called a *small* office—let us then call them offices in a small town.

I am one of the fortunate people who help to train operators in a small town. You may wonder when I say I am one of the fortunates. I had the opportunity for training offered by the Chicago office and was fortunate enough to complete the seven weeks' course in long distance training. This has given me a real appreciation of the value of training.

Of course, in the Chicago office the girls have a large restroom, with a Victrola, piano, and also magazines. They have a large cafeteria where the girls have their lunches. Tennis courts and roof gardens are also provided. In LaPorte, we are doing just the same, but on a smaller scale. We have formed a tennis club to take care of the girls who are athletically inclined. Then the majority of our girls are members of the Business Girls' Association.

Various Steps in Training.

The classroom in the LaPorte office is equipped with a blackboard, an exact duplicate of our multiple to familiarize the operator with the location of numbers in the multiple, a pay-station coin box to train operators to distinguish the different coin deposits, a ringing machine in order that the operators may become familiar with the proper length of a ring and to space the code rings properly on the rural lines.

We have found it necessary to make a slight change in the routines to fit our various offices. So, in addition to the regular classroom books which consist of routines for local operators, and the five books on long distance practice, we have bound copies of bulletins which pertain to the changes we have found necessary to make. We also have a map of the circuits that terminate on the LaPorte switchboard.

Of course, our training school is not on as large a scale as the training schools in South Bend, Indianapolis, etc. In fact, our school is operated on a plan that any office—Plymouth, Rochester or any other office where there is more than one operator on duty at a time—will find practical.

Our first step in training a girl is to have her read the instructions over thoroughly—then we have drills on them. We include in the course each day a discourse that tends to develop personal initiative, because we realize that the technique in our profession is just what it is in music. It's the soul of music that counts—and in the giving of service, is it not the spirit?

We endeavor to bring to the operators' attention, the things that will give them a fresh incentive to make each day's service just a little better than the preceding day, for we know there is no such thing as standing still—we either progress or retrograde.

Next the girl practices finding numbers on our practice board. This practice board has been found very helpful. When the girl is assigned to a position at the regular switchboard, you would be surprised how quickly she locates her numbers in the multiple.

When a girl is taken to the regular switchboard, she is under constant supervision of a supervisor or instructor. For several days she is only permitted to have just one call on her position at a time. We have several reasons for following this method:

It is always confusing, as you know, for a student operator to answer the public the first few times. This gives the instructor, or the girl who is supervising with the student, an opportunity to note whether she is using the proper inflection, to note her repetition, her ability to locate numbers in the multiple. You can see that it also gives the operator a chance to apply the training she has received without causing her to form careless habits of operating, due to the confusion naturally attendant on endeavoring to handle a rush of traffic.

Before a small child learns to walk, it learns to creep—you can see that we are merely applying the same principle.

We also try to apply this system of training to our offices where there is just one operator on duty at a time, for it is just as essential that the girl at Wanatah know the correct local and long distance phrases and uses them, as the girl in Fort Wayne, Indianapolis or South Bend.

Has Numerous Duties.

The girl in a one-position office has to be the local, rural, long distance and information operator—and sometimes general manager as well. In our particular case, when there is going to be a vacancy in one of our sub-exchanges, the prospective operator is trained in the LaPorte office school. So you see the system we use is a really practical one, and one that would be useful to any single position office.

Telephone service is universal. It does not affect an individual town or hamlet, but it involves every community in the universe. Therefore, it is essential that the operator at Millford render as efficient service as the girl in far away Frisco.

PURPOSE OF EDUCATION.

The entire object of true education is to make people not merely do the right thing, but enjoy the right things; not merely industrious, but to love industry; not merely learned, but to love knowledge; not merely pure, but to love purity; nor merely just, but to hunger and thirst after justice.—John Ruskin.

Sundry Snapshots Along the Trail

Observations and Comments, Pertinent and Otherwise, On the Sunshine and Shadows of Telephone Work

By Well Clay

It's nice to linger in the lanes
And by the noisy stream,
To saunter on without a care
Or loaf and rest and dream;
To 'scape the burning noonday heat
And side-step the sweaty toil
Which comes to those who till the fields
And wrestle with the soil.

It's nice to duck the daily grind
And flee the noisy town
Where the midday heat is oven hot
And hosts are stricken down;
To leave the clamour and the strain
And throw off the chaffing load,
To wander forth and worry not—
A real knight of the road.

All this is nice and sure allures
Those who long for peaceful rest,
Who reckon not of aught to irk
But dream only of the best.
To them the life is all a joy,
The open road so free
Their provender—they've but to ask—
Their bed, of grass, beneath a tree.

When the chill of autumn chases
All the smiles from summer's face,
And the nippy northern breezes
Help accelerate your pace,
Then the bower by the wayside
Is far from a warm retreat
And your stomach keeps insisting
That you go somewhere and eat.

It's then a life of roving
Somehow doesn't look so gay;
You are wishing you were back again
Where you used to draw your pay.
When the frost is on the meadow
And the corn is on the cob,
The only one you envy
Is the one who holds a job.

It sometimes seems in hot weather, such as usually comes in its season, that we boys who have to work are not so lucky as many others who seem to saunter through life without apparent effort. They seem to live without having to punch the time clock or otherwise check in for a day's existence.

It Often Seems in Hot Weather That We Who Work Are Not So Lucky as Many Who Just Saunter Through Life.

With all things, however bad or seemingly so, there is included compensation of some sort and we can comfort ourselves with the idea that we shall have the laugh on the truants later on.

Trimming trees, digging holes, stringing wire, driving anchors, replacing insulators, and such work is surely not a pleasant recreation when the thermometer is trying to pass the 100 mark and the breeze has laid down on the job. But we can live in anticipation of that period a little later when the melons, plums and apples are ripe and chickens, ducks and geese form the bulwark against famine on the farmer's dining table.

The farmer has his different work in different parts of the year and the hardest of all comes right when nature has made it so agreeable for him to lay off and take it easy. The farmer tackles his haying and harvest no matter what the weather is, and we should be glad to do likewise.

Patrolling lines is not the worst work in the world, and a good deal of it is generally done during the hot weather as then the roads are good and the days are long. Lines should be patrolled every year thoroughly as a safeguard against winter troubles.

In the auditing department of a telephone exchange the cost of patrolling is taken care of as a repair expense, but to my mind there should be a different division of this expense from that of ordinary repairs.

If one goes out and moves a line of poles for a road-grading crew, it is an extraordinary expense, not a repair or an improvement. When you go out to mend a broken line, that is a repair which adds much to the expense with but little work actually done on the line against a large amount spent for travel.

When a crew goes out fully equipped to go over a line, repairing, replacing and restoring as they go, it adds much to the value of the line with but little average expense per piece of work done for travel. It tones up the whole line and renews the life and looks of the plant to a very noticeable degree. It arrests impending cases of trouble and cuts out and prevents a multitude of minor repairs which would surely ensue if the line were left to go to pieces.

I believe a part of such patrolling should be credited to depreciation as it prolongs the life of the plant and one is actually using much material and labor in arresting depreciation in this way which would not be used otherwise on imperative repairs until the lines went to pieces from neglect and then had to be replaced entirely at the expense of the depreciation reserve.

One Is Using Much Labor in This Way in Arresting Depreciation and It Should Bear Some of the Cost.

If one adds five or ten years to the life of a lead by adequate and seasonable patrolling, without waiting for trouble to make itself manifest in interruptions of service, it seems to me that part of the patrol expense, which insured the increase in its span of usefulness, should be credited to the same account which would be depleted ultimately to replace the lead which might through neglect have much sooner arrived at the end of its usefulness.

In another way to look at the matter, one might say that a plant lasting 20 years in full availability for service, by reason of periodical going over and renewing all weak or missing parts, could be taken as a standard. In 100 years it would have to be entirely replaced but five times, whereas a different system of maintenance might make it necessary to renew another plant every 15 years. In 100 years—the life of the average manager—the patrol system properly applied would give 20 years of life for the plant.

Should, then, the cost of the extra quarter of a century, which would enable five plants to cover the period ordinarily covered by six plants, be charged to repairs and the manager requiring six plants allowed to loaf and dip into the depreciation account for an extra plant every century? In any event it is more satisfactory to properly take care of your plant, let the cost fall where it may.

APHORISM: Never mending brings a quick ending.

That Much Discussed Depreciation

General Scope of Subject — Relation of Depreciation to the Engineering Field — Various Angles in the Setting Up of a Depreciation Reserve — Paper Presented at Kansas Independent Telephone Association Convention

By J. W. Wopat,
Engineer, Kansas City Telephone Co.

Depreciation is a subject that goes into the field of law, accounting and engineering. Courts have handed down discussions as to its status; accountants have argued over it; and engineers have discussed it as to what it should embrace. Generally they have all disagreed, in some respects. I shall not attempt to discuss the subject with reference to all of its phases, but shall confine myself only insofar as it bears on engineering and leave the legal and accounting aspects to those who are better qualified to treat the subject from those viewpoints.

Depreciation is the measure of loss in the value of an investment in any property that has a limited life. Surely operators of telephone property will agree that telephone property, as a whole, has a limited life, and a life that is none too long to be lost sight of. Every careful operator does, and rightfully should, see that a suitable and ample reserve is set aside from the earnings to meet the inevitable.

Moneys invested in the public utilities are invested to give public service, not for this year, or next year, but during the life of the institution. The public should be assured that it shall receive that service, and, also equally important, the man who invests his money must be assured and safeguarded to see that his interest is not impaired and finally wasted away.

One way that this assurance can be obtained is by setting aside a safe and reasonable reserve during the entire life of utility. This reserve must come from the earnings of the property and the investor should not be expected to add new capital when a unit of a plant becomes unserviceable or retired.

This reserve must not be distributed as dividends, as the interest of the public would become impaired. Further, the reserve set aside from the earnings for depreciation, must not be construed to be a surplus, but rather as an interest of the public in the enterprise. It is a trust fund of the public, and it is their assurance that they shall receive such service as was intended that they should.

Depreciation has a definite relation to the life of a plant. By life of a plant, is meant serviceable life without any regard to the reason why any portions were replaced. Strictly speaking, it is a measure of the useful life of a plant, and this measure alone shall determine the amount, —the percentage of amount—that shall be charged.

It is a well known fact that there are very small portions of a telephone plant that are allowed to remain in the plant to serve out their useful life. By far the larger percentage of plant is replaced on account of obsolescence, inadequacy and extraordinary repairs, than through natural wearing out.

In view of this, it is obvious that it would not be correct to assume that, if a pole lasts in the ground in a certain locality so many years, that would be its useful life; that same pole may be removed next year because the city decided to make that particular street a boulevard and objects to poles on a boulevard.

With these facts in view, the amount or percentage that is finally decided upon as a depreciation reserve, should be very liberal for there is no man who can figure what demands will be made upon this reserve. It is subject to call on account of sleet storms, fires, floods and moving of plant; on account of municipal regulations; replacement of plant on account of demands from the public for certain types of service, etc.

These all may come along before the plant has served its life and, usually when the cost of removal is deducted, the salvage does not amount to very much. It is a dangerous doctrine to assume that the law of average will apply. The telephone plant is too composite a structure; it is exposed more than any other utility to both Nature's and artificial elements that may cause its removal before it has served its natural life.

There are very few items that one can classify with any degree of safety as being permanent. A large percentage of the telephone plant is not located on the company's premises and under its control, but is on public highways, streets, alleys, on the private property of subscribers and others. It at all times is subject to whims of individuals and demands for moving or changes by municipal authorities. This is a most unique condition—it is a particular characteristic of the telephone business.

With all these facts before us, it is not safe to say the law of averages will apply, but it is safe to say that according to the law of averages it will not apply. So after a very careful study and consideration of all facts that enter into the case—after it has been determined from the best facts and experiences that certain classes of plant shall have a certain useful life. and then the composite useful life is set up and the amount to be set aside each year for certain valuation is determined—there should be applied a factor of safety.

It is by far a safer doctrine to have a depreciation reserve too large than too small. Money set aside for reserve is a trust fund, insurance fund or insurance reserve to protect the standard of service. It is the subscribers' assurance that they shall at all times get that service which they rightfully should; on the other hand it is an assurance to the investor that his investment will not depreciate or waste away. A healthy reserve is only a true barometer of a sound institution and one from which the highest class of service can be demanded.

The amount determined to be set aside for depreciation reserve, is an operating expense and should bear the expense of the cost of removals due to physical deterioration—natural wear and tear, decay of poles and cross arms, etc.; of obsolesence—the cost of replacement, plus the cost of removal less salvage, due to replacing a telephone equipment before it has served out its natural life such as replacing open wire with cable, aerial cable with underground cable, moving, removing or replacing plant on account of municipal regulation, replacing magneto switchboard with common battery, common battery with automatic, etc.; of extraordinary repairs such as replacing of portions of plant on account of fires, floods, winds, sleet storms, etc.; of inadequacy, replacing small cable with larger on account of not being able to serve a particular community or section.

All these are properly chargeable to depreciation. Only additions or betterment should be charged to capital account.

A THINKER OR A THING?

A man is either a thinker or a thing—he may take his choice. He is either one of the Efficient Few who create and operate civilization or he is one of the Automatic Many, who believe instead of think and follow at all times the line of least resistance.—Herbert N. Casson.

How shall depreciation reserves be set up? Depreciation reserve is set up by charging expense with a certain fixed amount annually. This amount, which represents cash, is set up in a special fund, known as depreciation reserve. There are a number of ways, by which this reserve is administered, but the two most common ways are known as "sinking fund" and "straight line."

Under the "sinking fund" method, the reserve for depreciation is invested in interest-drawing securities of other enterprises or else deposited as the management may determine. The amount set aside each year is, therefore, annuity, which with its interest will aggregate this amount of the worn out property at the end of its life.

The "straight line" method reserve does not bear interest. The amount set aside each year represents wearing value, and the reserve is reinvested in the plant. However, under either method when the plant reaches the end of its life, or any portion of the plant reaches its end, the amount set aside should be the same under both methods.

The method used must be decided by carefully weighing all the facts peculiar to the particular plant. There is no fast and hard rule to guide one to a decision as to which method should be used and which is preferable—each has its advantages and disadvantages.

The method which is to be employed in setting up depreciation reserve can only be adopted after all the conditions affecting the economic conditions of the plant have been carefully reviewed. If the reserve is to be reinvested in plant, the "straight line" method must be employed. If the plant is not expanding and there is no need for additional investment, the "sinking fund" method is preferred.

When the cash representing depreciation reserve is invested in securities of other properties, and the interest is not paid by the subscriber, but by others, it would appear that the burden would be less on the subscribers. This is true in a plant that is not growing; in a plant that requires money for extension and betterment, it is not the case. If the reserve of a growing plant is invested in other securities and new money is brought in for extensions, the subscribers must pay a full return on the new money, where under the "straight line" method, the reserve should be invested and no return would be made.

If it is possible to loan and borrow money at the same rate of interest, or if securities of other property pay the same rate of interest, or if securities of other property pay the same rate of dividends as those of the plant under consideration, then there is no choice.

Let us see if this is true. There is no question about this fact: We can borrow money at the same rate of interest as can be realized on short-time loans. We can buy securities that pay the same dividend as those of our plant. Therefore, the only way we could break even is to buy securities.

We know that all securities are speculative and it is not always possible to realize on them on short notice. Depreciation reserve is a trust fund and must be available on demand, for we do not know when a call for the money will be necessary. It is a fund that should not be speculated with, as it is apt to impair the original investment. Therefore, the only reasonable course left would be to deposit the money in a bank or invest in safe bonds and these never have the same return as stock.

Thus it is obvious that the "sinking fund" is not as favorable to the subscriber as the "straight line" in a growing plant. It is also possible to combine the two methods in some cases.

It is possible to handle a reserve by a method that bears characteristics of the two methods, but which is rather unique and not concurred in by some people. It is this:

To build up a reserve as early as possible by annual appropriations for the earnings somewhat higher than the generally-accepted amount under the previously discussed methods. After this reserve has been built up, keep it at this definite percentage with relation to the total plant valuation by adding to it annually as much as may be required.

By this method, reserve is available, irrespective of any calamity that may overtake you. The reserve can be handled under the method outlined as under the two previous methods depending upon economic conditions.

Whatever method is decided upon, it must be born in mind that it shall by all means be adequate and that it shall at all times stand ready and be available.

Auditor and the Plant Department

The Relationship of an Auditor to the Plant Department Is an Important Subject to Which but Very Little Attention Is Given in the Average Medium or Small Size Telephone Company — His Duties Here Explained

By L. E. Croake, *Auditor*,
Mountain Home Telephone Co., Plattsburgh, N. Y.

"What are the duties and authority of the auditor?" In the minds of most of our people, the auditor is the individual who supervises the issuing of the monthly bills and the bookkeeping of the company. This is, of course, true, but if these were his only duties his title should more aptly be "head bookkeeper," or perhaps the more modern term of "chief accounting officer."

In a company of this size, the auditor's duties are two-fold. He is the chief accounting officer and, literally speaking, is the auditor. As the accounting officer, he keeps the books, accounts and statistics of the corporation and directs all accounting matters throughout the organization. As the company's auditor he has another important duty to perform, which is concerned with analyzing and verifying the results of the bookkeeping and accounting procedures.

In this latter connection, his is a definite and important department. Because of the confidential nature of his work and the fact that he should be unhampered in authority, he reports only to the president and to the board of directors. Accordingly in his capacity as auditor—and as far as the general operating organization is concerned—he is virtually an outsider, and as the representative of the president and the board of directors is relied upon by them to see that the company's money and other property is not misspent or misused.

When a receipted bill is received from any department, showing that money has been spent from an employe's petty cash fund, the auditor examines the receipt signature, explanation of expenditure, distribution to accounts chargeable, etc. He is not, however, required nor expected to invariably accept such receipted bill as final proof of expenditure. Nor when he receives a report from the field, or from a subordinate, is he to assume that it must be or is correct.

In both of these cases he is required to inaugurate such internal checks and conduct such personal investigations—at regular or irregular periods—as may be necessary to assure him that the reports are correct, to ascertain that the money was actually so spent and that value was received by the company.

The general officer having direct supervision over the company's cash and securities is the treasurer. For the company's protection, and at irregular inter-

vals, the auditor makes a complete check or audit of the funds and current assets controlled by the treasurer; sees that all items are accounted for, and that the values thereof agree with the general ledger records. This verification is an established practice with all large corporations, and the treasurer is as anxious that such audit be made as is the auditor himself.

The company advances a certain sum to the treasurer as a working advance, from which advances in smaller amounts are made to the various employes for their working advances, or so-called petty cash funds. In order that the auditor may properly verify this fund, it is, of course, necessary that he audit the advances in the hands of employes.

The commercial department has charge of the collection from subscribers, and in so doing has the handling of large sums of money. We have an established procedure for such collections; nevertheless the auditor is required to occasionally make exhaustive checks of the handling of this money to see that there are no errors or misappropriations. These latter are very rare in the telephone business but the verification must be made just the same.

The foregoing explanatory remarks refer almost entirely to the checks maintained upon cash, and you will readily grasp the justification for such procedures.

Now, just how does this rather obvious explanation affect you?

The auditor's duties, as explained, refer to all things of value and his records take in everything for which the company has paid value. The wire chiefs, as the storekeepers of the company, likewise have the care of amounts of considerable value, sometimes handling more than the commercial managers. These amounts, however, are not money or currency, but supplies.

The average employe has in his possession company-owned tools which in total value often exceed the cash advanced to any employe. Due to the impossibility of keeping an accurate check thereon, there is far greater chance for discrepancies in the handling of material and tools than in the handling of actual cash. There is no reason why as close a check should not be kept upon supplies, for which cash has already been spent, as is maintained upon actual cash and securities.

Our superintendent of supplies maintains a record which indicates the quantity of unissued supplies of each kind at each storeroom and pole yard. He frequently calls for inventories of certain items, the quantities of which are then supplied by you as storekeepers. You are also almost daily reporting the receipt of new material and the recovery of supplies from plant.

It should be the duty of the auditor to see that the supply records are reasonably correct, and that all supplies purchased or recovered are properly accounted for. This is just as important as it is to see that all the cash collected by the commercial department is deposited to the company's credit.

The values controlled by the superintendent of supplies should be as conscientiously checked as are those controlled by the treasurer. Therefore, do not be surprised if, after you have submitted an inventory or reported the receipt of material, the auditor or his representative, should call and ask for a verification. When securing this count, we will not be justified in taking your word for it any more than we would be to take the commercial manager's word for the cash to be accounted for. We must see the material.

EXCHANGE MANAGERS.

When you have read your copy of "Telephony" pass it on to the other members of your organization and see that it reaches all of them. This plan is followed in many up-to-date business offices and works for efficiency and helpfulness all around.

"I always 'route' all the publications that come to my desk so that they pass from hand to hand, and everybody gets a chance to look them over," said a well-known telephone man in a recent letter.

"It produces good results. Employes read articles that help them in their work, and start them thinking about improving their time and opportunities."

The operators' papers in "Telephony" have made a hit with telephone workers generally. Have you been handing your office copy to your operating staff to read? If you keep a pile of "Telephony" for binding (as many companies do), subscribe for an additional copy so your force can get the benefit of reading the leading telephone journal every week.

See that "Telephony" reaches your staff every week.

Los Angeles Company Opens Its Ten-Story Home.

The Southern California Telephone Co. recently opened its new ten-story office building in Los Angeles to the public for inspection. Thousands of patrons and friends responded to the company's invitation on the opening day.

The building, which is a modern, attractive structure, is a part of the extensive construction program of the Southern California company. The interior is not quite completed but the departments whose quarters are finished have moved in. They aided in showing the visitors through the place.

Work has commenced on the installation at the company's former offices of what is said to be the largest single-unit switchboard ever manufactured. It will have a capacity of 40,000 telephones.

The local newspapers were generous in their space for the description of the building and the history of the telephone industry in Los Angeles. Cuts of the building were used and all in all a very nice story was told.

The company ran a large advertisement in the papers, giving the statistics covering six months of telephone growth and closing with a promise to continue to make every effort to give Los Angeles an efficient and satisfactory telephone service.

N. R. Powley, commercial superintendent of the Southern California company, has kindly offered to send a layout to anyone who would like to have a detailed description of the office arrangement.

Mexico Planning to Extend its Telephone System.

Application has been made to the governor of the state of Tamaulipas by the Mexican Telephone & Telegraph Co. for a concession for the construction of a telephone exchange and system in Tampico.

If this permit is granted the new work will be started promptly and it is believed that by early 1923 the new building will be completed, wires strung, and all arrangements made so that Tamaulipas and surrounding country will have 3,600 telephones ready for conversations.

With the new exchange in Tampico, long distance connections can be made to practically every city in Mexico.

Purdue University to Study Cable Corrosion.

In certain cases the lead sheath of cables laid directly in a trench without conduit have been destroyed by corrosion. In some cases this has been due to the electrolytic action of stray trolley return currents but in other cases it seems to be due to some sort of chemical action brought on by the presence of certain compounds in the soil.

The Engineering Experiment Station of Purdue University, Lafayette, Ind., has recently undertaken a project which will include a study of some of the factors that are likely to cause deterioration of the lead sheath. Professors R. V. Achatz and F. O. Anderegg, respectively of telephone engineering and physical chemistry, are engaged jointly in the work.

A number of locations where cable has been in service several years, both where trouble has occurred and where none has been experienced, will be visited and a general survey of the conditions and a chemical investigation of the soil action will be made.

Telephone and Telegraph in Brazil

Ups and Downs of Telegraphy—Growth of Telephone Linked with Work of United States Telephone Pioneers—Government Active in the Development of Wireless—Excerpts from History by Dr. V. M. Berthold, of A. T. & T. Co.

A history of the telephone and telegraph in Brazil, from 1851 to 1921 has recently been written by Dr. Victor M. Berthold of the American Telephone & Telegraph Co.

The introduction of the telegraph in Brazil is contemporaneous with the war waged by the empire from 1851 to 1854 in defense of Uruguay against the Argentine dictator, Rosas. In 1852, the first telegrams were exchanged between the emperor and Queiroz, Minister of Justice and Capanema, later director of electric telegraphs.

Until 1858 the telegraph was used for official business only but in that year the government opened a line to the public. The telegraph passed through a long period of "development," part of the time supported by public opinion and a great deal of the time in the face of opposition. Under the republic that came into existence in 1889, more modern ideas concerning the management of the telegraph were introduced, new lines were constructed and communication between the states and with other countries was established.

In December, 1920, the telegraph system in Brazil had reached a development of 27,655 miles of pole lines with 49,550 miles of wire conductors. In that year, 6,493,689 telegrams of 127,327,724 words were sent and 26 additional telegraph stations opened for traffic. The 971 telegraph stations of Brazil produced a revenue of $7,466,000 in 1920.

In regard to cable service, at the outbreak of the world war in 1914, Brazil had four separate cable routes connecting it with the outside world. The Western Telegraph Co., Ltd., owns and operates the line known as the Madeira cable and various coastal cables to the north and south of Rio de Janeiro.

In 1905, wireless telegraph stations were erected by the Amazon Wireless Telegraph & Telephone Co. Other stations were erected in 1911 and the company authorized to operate wireless stations throughout Brazil. The government also took an active interest in wireless development.

The 1916 report of the telegraph administration showed eight coastal stations and eight inland stations to be in operation. In addition to these, the ministry of marine operated nine, and the ministry of war seven wireless stations, which were for official use only.

The construction of telephone lines began in Brazil in 1879, in which year the government also granted the first concession for the commercial use of the telephone. Private lines were, however, in existence as early as 1877. State telephone service became definitely established in November, 1890, when the government created a distinct telephone district.

The administration, in 1906, closed a contract with the Brazilianische Elec-

AWAKE BUT UNSETTLED.

The young man of today is fully awake to his responsibility, but he goes about them in an unsettled fashion. He must keep his purposes fixed in mind though the earth seems to fall about him. He must keep in fit mental and physical trim to carry his purpose through, and not let others discourage him.

A man gets out of the world, good or bad, just what he puts into it.—Lyman Abbott.

tricitäts-Gesellschaft, a German company formed in Brazil and authorized to operate in Brazil under a decree of April 7, 1899, for furnishing official telephone service. All official lines were connected to three centrals located about the capital. Four other centrals were used by the ministry of war and navy, police headquarters, and the general police.

The annual report for the year 1908 mentioned a total of 762 subscribers with 1,869 miles of telephone wire. During the year 1910, the telegraph administration constructed a telephone line between Rio de Janeiro and Petropolis, a distance of 33 miles, consisting of 188 miles of wire, and also a line between Petropolis and Therezopolis, a distance of 26 miles, consisting of 53 miles of wire.

The report of the telegraph administration for 1911 shows that at that time, interurban telephone service had been established between the capital and the cities of Nictheroy, Petropolis, and Therezopolis. For this service, for a conversation of five minutes' duration, established directly between two stations, 33 cents was charged, 66 cents for a conversation of five minutes that had to pass through an intermediate station.

The development of telephone service in Brazil is almost entirely the work of private enterprise and this development is closely connected with the work of the telephone pioneers in the United States, as only 18 months had passed after the incorporation of the Bell Telephone Co., of New York, when Theodore N. Vail turned his attention to the introduction of the telephone in foreign countries and created the Continental Telephone Co., planting the seed from which sprung the telephone service of Brazil and various other Latin American countries.

Many companies came into existence and operated with varying degrees of success, when in February, 1890, four months after the fall of the empire, the provisional government issued a decree authorizing the transfer of all telephone lines within the boundary of the capital to the municipal administration and gave the federal telegraph administration the power to establish telephone plants for official and private use throughout the republic.

Little is known about the condition of the telephone service in the capital from 1890 to 1896. About that time the municipality, after cancelling a contract with the Empreza Obras Publicas do Brazil, furnishing service in the capital, announced that a new concession would be granted to any responsible party that would undertake to supply an efficient telephone service throughout the entire municipal area, which then covered about 430 square miles and invited public bids.

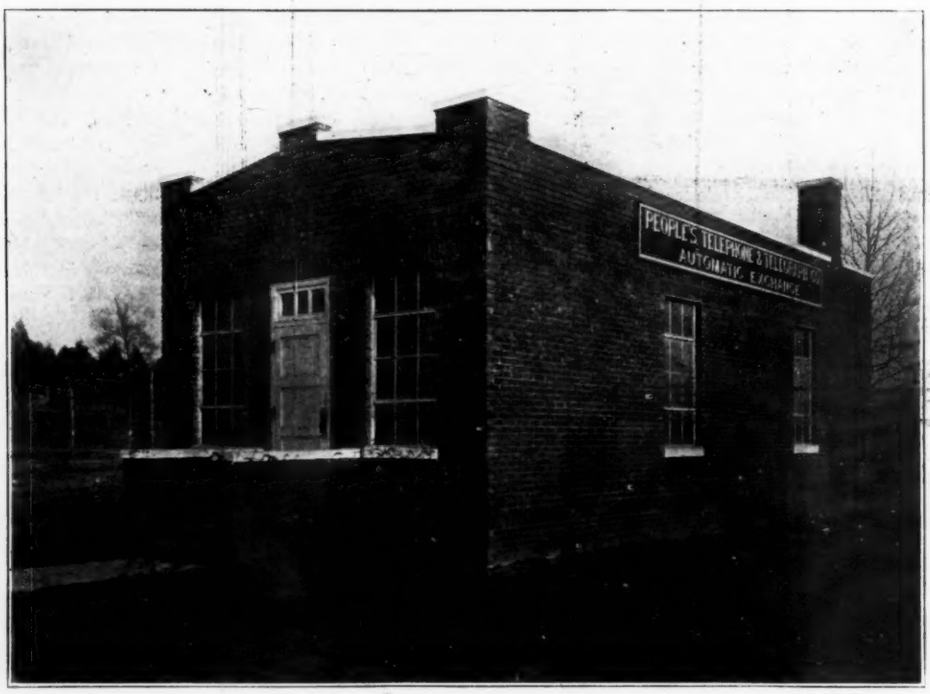
After contracts had been granted and transferred from one company to another, in June, 1899, the Brazilianische Electricitäts-Gesellschaft was granted a concession and in accordance with the terms was to pay to the municipality 10 per cent of the annual net profits and in consideration of this payment was exempted from all municipal taxes. The company continued to operate as an independent company until 1907, although as early as 1905 the entire stock had been acquired by interests associated with the Rio de Janeiro Tramway, Light & Power Co.

In 1912, the Brazilian Traction, Light & Power Co. was incorporated and formed to consolidate the interests of the Rio de Janeiro Tramway, Light & Power Co., Ltd., the São Paulo Tramway, Light & Power Co., Ltd., the São Paulo Electric Co., Ltd. Two years later, the company acquired the controlling interest in the Companhia Rede Telephonica Bragantina, operating in the state of São Paulo, and in the Cia Telephonica do Estado de São Paulo, which operated telephone systems in São Paulo, Santos and Campinas.

Then followed the incorporation of the Rio de Janeiro & São Paulo Telephone Co. in 1916, under the laws of Canada for the purpose of acquiring and developing the telephone enterprises owned by the Brazilian Traction, Light & Power Co., Ltd.

The Rio de Janeiro and São Paulo company has acquired the shares of the Brazilianische Electricitäts-Gesellschalt, serv-

Humboldt Office, St. Paul



Exchange at Fountain City, Tennessee

Many of the advantages of Automatic operation are frequently overlooked. Economy in building construction is one of these. Others can better be explained to you by our engineers in connection with your own exchange. They are ready at all times to prepare studies or estimates of cost for you without obligation.

Please tell the Advertiser you saw his Advertisement in TELEPHONY.

What Are Your Building Costs?

The large buildings and elaborate construction necessary for manual operation of a telephone system represent substantial additional investment over the requirements of Automatic operation, without additional return.

For Automatic operation, other conditions being equal, the exchange building is much smaller and construction is of the very simplest nature. Operators' quarters, such as rest rooms, cafeterias and locker space are all dispensed with. The various fixtures and fittings are all less elaborate.

On the opposite page are shown two typical buildings housing Automatic exchanges. The first is the recently completed Humboldt exchange of the Tri-State Telephone and Telegraph Company at St. Paul. At present it houses 2,300 lines of Automatic equipment, with space available for 1,200 lines additional.

The second photograph shows the exchange building of the Peoples Telephone and Telegraph Company at Fountain City, Tennessee. This is a typical unattended sub-office of 300 lines with space available for 500 lines additional.

It is, of course, not necessary to construct special buildings for Strowger Automatic. Automatic switchboards are frequently placed in the same building with the manual equipment to be replaced, and there is usually a substantial saving in space by so doing.

Automatic Electric Company

FACTORY AND GENERAL OFFICES: CHICAGO, ILLINOIS

BRANCH OFFICES:

New York City, 21 East 40th St.
Cleveland, 415 Cuyahoga Bldg.
Philadelphia, The Bourse Bldg.
Columbus, 518 Ferris Bldg.
Boston, 445 Tremont Bldg.
Rochester, Mercantile Bldg.
Detroit, 525 Ford Bldg.
Washington, 905 Munson Bldg.
Cincinnati, Union Central Bldg.
Los Angeles, 238 San Fernando Bldg.
Pittsburgh, 608 Fulton Bldg.
Kansas City, 1001 New York Life Bldg.

ASSOCIATED COMPANIES:
INTERNATIONAL TELEPHONE SALES AND ENGINEERING CORPORATION, New York
International Automatic Telephone Company, Ltd., London
Compagnie Francaise pour l'Exploitation des Procédés Thomson-Houston, Paris
Automatic Telephone Mfg. Co., Ltd., Liverpool
Automatic Telephones, Australisia, Ltd., Sydney

Automatic service is frequently referred to as the "dial and talk" service; contrast this with manual operation, which is all too often the "ask for and wait" service.

ing the city and federal district of Rio de Janeiro; the Interurban Telephone Co. of Brazil, serving Nictheroy, Petropolis, and a number of smaller towns in the vicinity; Companhia de Telephones Interestadoaes; Companhia Telephonica do Estado de São Paulo; and Companhia Rede Telephonica Bragantina.

The growth of the Rio de Janeiro & São Paulo Telephone Co. from 1916 to 1920 has been remarkable, the increase in telephones during this time being 33,816 or a gain of over 107 per cent. On January 1, 1921, this company operated about 75 per cent of the total number of telephones in the Republic of Brazil. The remaining 25 per cent is represented by some 50 private concerns.

Based on information received from private sources, the total number of telephones in Brazil on January 1, 1921, is estimated as 85,000, which represents a development of 0.28 telephone per 100 of population. Undoubtedly, statistics if complete would show higher development.

Government Building a Telephone Line in Colorado.

Over the Fall River road in Colorado, the highest automobile road in the world, a vista of entrancing scenery on every side, the United States Park Service is building a telephone line to connect Grandlake and Estes Park.

The completion of this line will not only fulfill the government's purpose, but if it should happen that the wires leading toward Loveland and Longmont were down, Estes Park could get into communication with Denver via the Fall River road line. Grandlake is only a short distance from Granby, a station on the Denver & Salt Lake Railroad, where telephone communication is maintained with the Denver headquarters.

Financial Statements and Reports

Semi-Annual Reports of Bell and Independent Companies Indicate Arrival of Prosperous Times—Lincoln, Neb., Company Shows Improvement—Statement Commenting on Rates Issued With A. T. & T. Report—Other Reports

Financial Statement of Lincoln (Neb.) Company Shows Gains.

The first six months of 1922 materially increased the financial resources of the Lincoln (Neb.) Telephone & Telegraph Co., according to its report, filed with the state railway commission. The company has dividend requirements of 5.83 per cent, paying its common stockholders 7 per cent and a considerable group of special preferred stockholders 5 per cent. For the last six months of 1921 the company failed by a little over a thousand dollars to make its dividend. For the first six months of 1922 it made an average of 6.43 per cent, as compared with 5.80 for the preceding six months.

The company now has assets of $10,435,127, an increase in six months of $201,639, or 1.96 per cent. Depreciation reserves have increased $80,791, with a total of $1,601,293. The surplus has increased 34.53 per cent, or $63,999 and now stands at $249,337.

The exchange revenue for the six months was $839,722 and toll $329,161, a total of $1,168,883. Exchange revenues increased $4,926 and toll $2,830, a total of $7,756, or 6.7 per cent. Operating expenses for the same period were $348,892, a decrease of $32,015, or 8.48 per cent. Maintenance costs were $203,273, a decrease of $9,698, or 4.55 per cent. Taxes increased 10.26 per cent, but the movement in the state for tax reduction will mean reductions in this beginning with next November.

The net increase in telephone earnings for the six months was $30,408, or 13.13 per cent, and the net income for that time, applicable to dividends was $261,949. After dividends were paid, there were left to pass to surplus $20,192, an increase of $21,207 over the previous six months' period.

The average monthly revenue per station has decreased 13 cents in that time, due to the changes to lower-priced service and to the fact that most of the new services added were at the lower rates. The company now has in service 67,390 stations, the average revenue from which is $2,930. The average plant investment per station is now $133.48, as compared with $134.50 on December 31 last.

A. T. & T. Report of Operations for First Half of 1922.

The American Telephone & Telegraph Co. for the six months ended June 30, 1922, reports an estimated balance, after charges and taxes, amounting to $32,364,133. This is equivalent to $5.75 a share earned on $562,259,400 capital stock, compared with $5.89 a share earned on $449,384,000 capital stock in the first six months in 1921.

The total income for the first half year of 1921 amounted to $5,050,562 compared with $53,498,855 for the corresponding period of 1921.

The income account—partly estimated—for the six months ended June 30, 1922, compared with 1921 and 1920 is given in the following table:

	1922.	1921.	1920.
Dividends	$21,751,388	$18,414,407	$17,397,835
Int. and other rev.	6,541,232	6,454,736	6,181,263
Telephone traffic ...	31,363,942	28,559,712	28,180,622
Total income	$59,656,562	$53,428,855	$51,759,720
Expenses and taxes	19,036,610	17,048,730	16,009,260
Net earnings	$40,619,952	$36,380,125	$35,750,460
Interest ...	8,255,819	9,868,022	9,421,797
Balance ...	$32,364,133	$26,512,103	$26,328,663
Dividends..	25,285,847	18.938,597	17,682,343
Surplus ...	$ 7,078,286	$ 7,573,506	$ 8,646,320

H. B. Thayer, president of the company, in a statement to stockholders said, in part:

"Our service must not only keep pace with the growth of the country; it must also meet the constantly increasing use of the telephone. We must give not only the best service possible, but also the broadest service possible. Our charges must be low enough to enable every one who needs a telephone to have one; they must be high enough to attract the new capital necessary to take care of this growth.

"The lowest rates which may be imposed upon telephone companies by regulatory bodies must, under the law, afford a fair return upon the value of their properties. In the Bell system the value of the property is admittedly largely in excess of the capitalization, so that such fair return would provide a large margin over dividend requirements. However, in the interest of the broadest service, we have asked only for such rates as to give a safe margin.

"Where, as occasionally but not frequently happens, regulatory bodies have prescribed rates so low as to be clearly confiscatory, we believe our duty to the public requires us to present the facts to the courts. During the last quarter there have been notable decisions—one by the United States Supreme Court—sustaining us."

Keystone Average for Seven Months Better—July Lower.

A decrease of more than $100,000 in operating expenses and taxes for the first seven months of 1922 enabled the Keystone Telephone Co., of Philadelphia, Pa., to show increased net earnings. This was despite lower gross earnings and higher interest charges this year than last year.

The balance available for dividends, surplus and reserve took a jump of more than 50 per cent over the figure for the seven months of 1921.

Considering the month of July alone,

the comparison is less favorable, the amount set aside for dividends and surplus being $4.00 under that for July, 1921. This is accounted for by smaller gross earnings and greater interest charges. The amounts expended for operating expenses and taxes were practically the same for both months.

The following statement of earnings represents the comparison between the figures for 1921 and those for 1922:

	For Month Ended July 31, 1922	Year Previous
Gross earnings	$140,920	$143,177
Operating expenses and taxes	83,677	83,783
Net earnings	$ 57,243	$ 59,394
Less interest charges	$ 42,575	$ 40,559
Balance available for dividends, surplus and reserve	$ 14,668	$ 18,835

	For 7 Months Ended July 31, 1922	Year Previous
Gross earnings	$967,058	$1,011,454
Operating expenses and taxes	582,596	682,806
Net earnings	384,462	328,648
Less interest charges	$290,695	$271,947
Balance available for dividends, surplus and reserve	$93,767	$56,701

Northwestern Bell Reports Decreases in Operating Expenses.

According to a report just filed with the Nebraska State Railway Commission, the Northwestern Bell Telephone Co., as a whole, has been restored to a 6 per cent earning basis. For May it earned 5.97 per cent and for the first five months of the year almost that figure. It reports that it has been able to cut operating expenses $225,000, but the greater part of this saving is eaten up by an increase of $137,000 in taxes.

An analysis of the figures show, however, that the reduction in expenses has occurred almost entirely outside of Nebraska. The system comprises 482,000 stations, operated in the states of Iowa, Minnesota, Nebraska and the two Dakotas. Nearly a fourth of these are in Nebraska.

The explanation of the failure of Nebraska operation to show a reduction in costs is that the company has been engaged in litigation over rates for months, and this has been costly. In the other states the company has been able to get an increase in rates, having won in court every rate case contest it had with the state authorities.

The following figures show the result of operation in the system and in Nebraska:

	System.	Nebraska.
Current maintenance per station per month	$0.537	$0.56
Depreciation	.655	.746
Traffic expense	1.01	1.067
Commercial expense	.332	.359
General expense	.121	.133

The total expense in the system is $2.65 per station per month and in Nebraska $2.90.

Compared with a year ago, the following percentages of increase and reduction apply:

	System.	Nebraska.
Maintenance and depreciation	* 4	*14
Traffic	† 8	†14
Commercial	† 2.5	* 6
General expense	†15	* 7

*Increase. †Reduction.

The total operating expense has decreased 1.2 per cent in the system and increased 3 per cent in Nebraska, with plant growth about the same.

Summaries of Reports of Class A Companies for May.

From the reports of 70 Class A companies for the month of May, the Bureau of Statistics of the Interstate Commerce Commission has compiled the statement shown on this page.

Comparison with the figures for May, 1921, shows an increase of 5 per cent in the number of stations.

Revenues from subscribers' stations were about 6 per cent greater this May than last, while the average for the first five months of 1922 was 8½ per cent more than that for the same period in 1921. The total operating revenues were 8 per cent more, both for the month and for the five-month period.

Traffic expenses have been showing an upward trend. They were 3.7 per cent more during May, 1922, than during the preceding May. The average decrease for the first five months of this year was 0.2 per cent.

The total operating expense for the month was approximately 7 per cent more than for May, 1921, while the total for the first five months of this year was about 5 per cent more.

Net operating revenues showed an advance of 10.7 per cent for the month and 16.3 per cent for the five months. The operating income was 9.1 per cent greater during the May just past, while it was 14.1 per cent higher for the five months.

The ratio of expenses to revenues was 70.32 per cent during May, 1922, and 71.05 per cent during 1921. The ratio for the five months decreased 2.13 per cent.

Item.	For the month of May— 1922.	1921.	Increase or decrease (*). Amount.	Ratio. Pct.	For the five months ending with May. 1922.	1921.	Increase or decrease (*). Amount.	Ratio. Pct.
Number of company stations in service at end of month	10,054,746	9,580,287	474,459	5.0	.....	.....	.....	...
Revenues:								
Subscribers' station revenues	$31,413,672	$29,669,998	$1,743,674	5.9	$154,643,822	$142,564,950	$12,078,872	8.5
Public pay station revenues	2,193,760	2,013,818	179,942	8.9	10,726,087	10,238,799	487,288	4.8
Miscellaneous exchange service revenues	413,076	410,534	2,542	0.6	2,098,443	2,078,608	19,835	1.0
Message tolls	12,912,571	11,472,281	1,440,290	12.6	59,372,453	55,513,779	3,858,674	7.0
Miscellaneous toll line revenues	1,373,433	1,266,910	106,523	8.4	6,756,071	6,308,058	448,013	7.1
Sundry miscellaneous revenues	800,304	649,646	150,658	23 2	3,979,888	3,245,935	733,953	22.6
Licensee revenue—Cr.	1,793,625	1,726,904	66,721	3.9	8,731,240	8,094,942	636,298	7.9
Licensee revenue—Dr.	1,793,772	1,725,645	68,127	3.9	8,731,170	8,088,799	642,371	7.9
Telephone operating revenues	$49,106,669	$45,484,446	$3,622,223	8.0	$237,576,834	$219,956,272	$17,620,562	8.0
Expenses:								
Depreciation of plant and equipment	$7,075,635	$6,314,404	$761,231	12.1	$ 34,851,008	$ 31,072,777	$ 3,778,231	12.2
All other maintenance	7,171,734	6,675,622	496,112	7.4	33,606.953	31,668,673	1,938,280	6.1
Traffic expenses	13,690,701	13,207,939	482,762	3.7	65,534,030	65,696,809	*1,162,779	*0.2
Commercial expenses	4,463,368	4,284,043	179,325	4.2	22,073,451	21,013,634	1,059,817	5.0
General and miscellaneous expenses	2,132,110	1,834,444	297,666	16.2	11,244,741	10,097,954	1,146,787	11.4
Telephone operating expenses	$34,533,548	$32,316,452	$2,217,096	6.9	$167,310,183	$159,549,847	$7,760,336	4.9
Net telephone operating revenues	14,573,121	13,167,994	1,405,127	10.7	$70,266,651	$60,406,425	$9,860,226	16.3
Other operating revenues	787	3,541	*2,754	*77.8	4,353	18,010	*13,657	*75.8
Other operating expenses	986	2,295	*1,309	*57.0	6,825	15,249	*8,424	*55.2
Uncollectible operating revenues	252,857	166,227	86,630	52.1	1,152,195	734,967	417,228	56.8
Operating income before deducting taxes	14,320,065	13,003,013	1,317,052	10.1	69,111,984	59,674,219	9,437,765	15.8
Taxes assignable to operations	3,625,387	3,199,656	425,731	13.3	17,981,763	14,849,396	3,132,367	21.1
Operating income	$10,694,678	$9,803,357	$891,321	9.1	$51,130,221	$44,824,823	$6,305,398	14.1
Ratio of expenses to revenues, per cent	70.32	71.05	*0.73	...	70.41	72.54	*2.13	...

Statistics of Operations for May, 1922, of Class A Telephone Companies, Compiled by Interstate Commerce Commission.

Radiotelephony and Wire Systems

Should the Telephone Handle Radio Equipment?

By J. B. Haley,

Radio Sales, Illinois Electric Co.

What is radio going to do to the telephone business?

Radio telephony will do to the telephone business just what you permit it to do, and no more, for some years to come. But you must not sit idly by and allow this golden opportunity to pass without garnering some of the benefits, either as individuals or as telephone companies.

In some states a public utility cannot merchandise. No doubt in your locality the garageman, hardware man, or somebody else is already arranging for the sale of radio apparatus. That is splendid now, but how long will this last? I do not mean the radio game, for everybody knows there is no limitation to anything that furnishes such a vast amount of entertainment and pleasure; but how long will others than the telephone man sell and handle radio apparatus?

Many of our readers can distinctly recall that when Independent telephony came in, many hardware and implement stores, etc., sold apparatus in places where there were no mutuals. How long did that continue? Until about the second man came back with a burned-out receiver, a packed transmitter, or bells that refused to ring —then the merchant found his original 100 per cent or 150 per cent profit on the sale was lost.

The very same factor exists today. The telephone man walks down the street and he hears such terms as "audion," "grid," "variable condenser," etc., and he experiences much the same sensation as does the man in charge in the small town when the telephone salesman first approaches his directors on common battery.

He fears because he feels he is entirely unacquainted with such matters, and he has nobody to teach him. He is afraid he will be unable to handle them, when as a matter of fact common battery is easier to handle than magneto. Just take a man from a city who has always been common battery, place him in charge of a magneto exchange and see how far he progresses.

Well, radiotelephony sounds just as mysterious, and you will soon find that the people in your town who are using these terms know them by name only. They do not have the slightest idea as to their manner of functioning—and you do, because you have had the same general principles to handle ever since you knew why a condenser is placed in a farm or party-line circuit.

Make a trip around to the homes of some of these people and see how much precaution they have taken to guard against contact with light wires or lightning (no doubt the time is not far off when authorities will bulletin the necessity for proper protection) and then you will be convinced of their slight knowledge of this apparatus.

You are the natural agency for radiotelephony, except in towns where radio stores can afford to employ a skilled adviser on maintenance of apparatus. And you know precisely what the maintenance of apparatus means to good service.

You doubtless have a physician or some other man in your town who built a nice new home two or three years ago and decided that one of the modern conveniences would be a great time saver—an intercommunicating set. He notified you, and you had the various manufacturers give you prices on good equipment. These you submitted to him with perhaps no charge for installation.

However, he saw one advertised by some Eastern firm and as it was decidedly cheaper than yours, he purchased their outfit and had the garageman, or the chap who operates the dynamos in the light plant, come up and install it. He was pleased at the thought that he had saved some money. That was two years ago; go up now and see his intercommunicating system—the keys stick, he cannot make the bells ring. Well, you understand as fully as I do.

So, get busy and learn all you can about radio. Procure a good set; good sets are not cheap. Get into it now!

South Africa's Postal Authorities Interested in Radio Telephone.

The possibility of utilizing wireless telephony in remote parts of South Africa and the parts otherwise difficult of access has been engaging the attention of the post office authorities of the Union of South Africa. Two suitable Marconi sets were purchased in England and various trials and tests made in Swaziland and other remote parts of South Africa, as well as between Cape Town and Touws River in the Cape Province, a distance of 160 miles, by the local representative of the Marconi company.

While these trials proved very satisfactory, so far as the range and efficiency of operation under favorable atmospheric conditions were concerned, the post office authorities express some doubt as to the commercial practicability of the method, particularly in a sparsely settled country like South Africa where the amount of traffic between the outlying districts would not be sufficient to guarantee the cost of the installations. A source of power is also necessary, and if, as would normally be the case in outlying districts, a gasoline engine and generator would supply the necessary power, the running costs would be considerable as compared with communication by land lines.

In view of the great development of the wireless telephone in the United States, particularly by amateurs, considerable publicity has been given to the subject in South Africa. A radio society was recently formed in Cape Town composed of amateurs interested in wireless telegraphy and telephony, but in view of the sparseness of the white population radio development in South Africa must necessarily be limited.

Some Sources of Elementary Radio Information.

The recent developments in radio communication have been so rapid that a great deal of important information has not been collected in books, but must be sought in periodicals and other sources, and of the number of important books which have appeared recently many are not yet generally known.

The U. S. Bureau of Standards is constantly receiving requests for radio information, and since the same information is called for by many of the inquiries received, and in order to facilitate answering such inquiries, Circular No. 122, entitled "Sources of Elementary Radio Information," has been prepared and may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 5 cents per copy.

This circular gives information concerning radio periodicals, government radio publications issued by various bureaus, radio books from numerous publishers, radio laws and regulations, call letters, and safety precautions to be observed at radio stations, and it answers a few of the most usual elementary questions concerning radio communication which are asked by the novice.

A Vacuum Tube Radio-Telephone Receiving Set.

In the article, "A Vacuum Tube Receiving Set," by B. D. Hull, general transmission and protection engineer, Southwestern Bell Telephone Co., St. Louis, Mo., published in TELEPHONY of July 15, there was a transposition of cuts so that the circuits do not correspond with the text matter.

This transposition of cuts was on page 22. The cut captions or titles of Figures 3 and 4 should be transposed and then the text matter will correspond with the circuit diagrams.

What Is Your Company Doing?

Chats About Company Doings.

By Stanley R. Edwards.

The Rochester (N. Y.) Herald recently carried an item accompanied by a two-column cut that gave the Rochester Telephone Corp., some nice publicity. Here is what was published under the cut:

"Rochester crowds are used to most anything in the 'human fly' line, but they got a distinct shock yesterday morning, when they saw Mike O'Brien of the Rochester Telephone Corp. apparently 'sitsing on air' in Exchange street. Right in the middle of the thoroughfare, higher than the highest structure in the vicinity, Mike sat, busily engaged at his work.

It was only after field glasses had been used that many Rochesterians realized that Mike was sitting on a cable and stretching others for his company."

The caption over the cut which was at the top of the page read: "Crowd watches the Original 'Human Fly.'" Looking at the photograph it certainly did look as if Mike O'Brien was "sitting on air."

The South Atlantic Telephone & Telegraph Co., Miami, Fla., believes in publicity. A letter insert or folder recently issued is entitled, "How your Telephone Troubles Are Handled." The paragraphs under this heading of the folder read:

"As much as we would like to do so, we cannot prevent your telephone from getting out of order occasionally. Maintaining a telephone system means a continuous battle with the elements. Constant, careful and costly effort is required to make your telephone service efficient and continuous.

"When trouble does occur we have a rigid system for recording and handling each case until we get an O. K. from the telephone involved."

Other subheads are utilized in the folder which reads:

No Part of the Work Is Left to Memory or Guess Work.

All Trouble Should be Reported to the Repair Clerk, Telephone 114, where the best facilities have been provided to handle it. The employe answering you records the trouble on an existing card record of your telephone before you hang up. At the same time it is recorded on a Trouble Sheet.

The card is passed to the Chief Test man and, in its turn, your line is tested to determine the nature and location of the trouble. The case is then assigned to an Inside Repairman, Line and Telephone Repairman, or Cable Repairman, either one or all, as is required.

The station card is not returned to its permanent place until the trouble is cleared. The number of the telephone in trouble is carried on the Trouble Sheet until it is cleared. If not cleared the same day reported, it is listed under the next date in red and given preference over trouble reported the second day.

The head of the department personally checks all "carried over" cases each day to determine why they were not cleared.

All Troubles Cannot Be Cleared Immediately.

All of these records are handled with as much care as the books of a National Bank. *No Case is Neglected,* but receives careful individual handling. Conditions differ in each case.

Seven League BOOTS
Distance is eliminated—one step to your telephone brings you into instant contact with a salesman. There is no quicker or more satisfactory way to order Flowers than by calling BUCKINGHAM 1000.
WITTBOLD Floral Artists are always in readiness to offer suggestions for your Floral Gift or expression of sympathy Delivery within the hour!
17 Telephones—All Buckingham 1000
This is the original GEORGE WITTBOLD organization—established in 1857. We have no LOOP store!
Wittbold FLORIST
745 Buckingham Place
As near to you as your phone

This Ad Suggests That Customers Use the Telephone for Instant Contact.

Some trouble is of such a nature that it is beyond the power of humans to repair quickly. A heavy rain or wind, or a careless laborer by sticking a pick in a cable, frequently puts several hundred telephones out of commission at one time.

Under such conditions it is impossible to restore all service at once; several days or a week may be necessary.

Our repair organization is set up with the idea of clearing every case of trouble with the least possible delay. Every employe is alive to his or her responsibility in this respect.

Do Not Make But One Report of Trouble.

Make this Report to the Repair Department, Telephone 114. Repeated reports of the same case do not help but tend to hinder the work of prompt clearing of the trouble. Reports to other departments or employes may be overlooked or delayed, as it is necessary for those employes to make the report to the Repair Department, in order to have the necessary record made.

The Repair Clerk cannot personally "fix" any telephone out of order and cannot state accurately how much time will be required. Accept our assurance that your case will never be slighted and deal with her courteously and pleasantly. This plan will get good results for you and make her job more nearly "bearable."

When you have co-operated with us as suggested *and Allowed a Reasonable Time Without Result,* you are invited and urged to report the case to the Management by calling the Business Office.

South Atlantic Telephone & Telegraph Co.
Frank B. Shutts, President.
F. W. Webster, General Manager.

The telephone is such an essential of modern life that it appears frequently in the advertisements in the daily newspapers. How one of Chicago's florists featured the telephone and its utility is shown in the reproduction on this page of one of his recent advertisements.

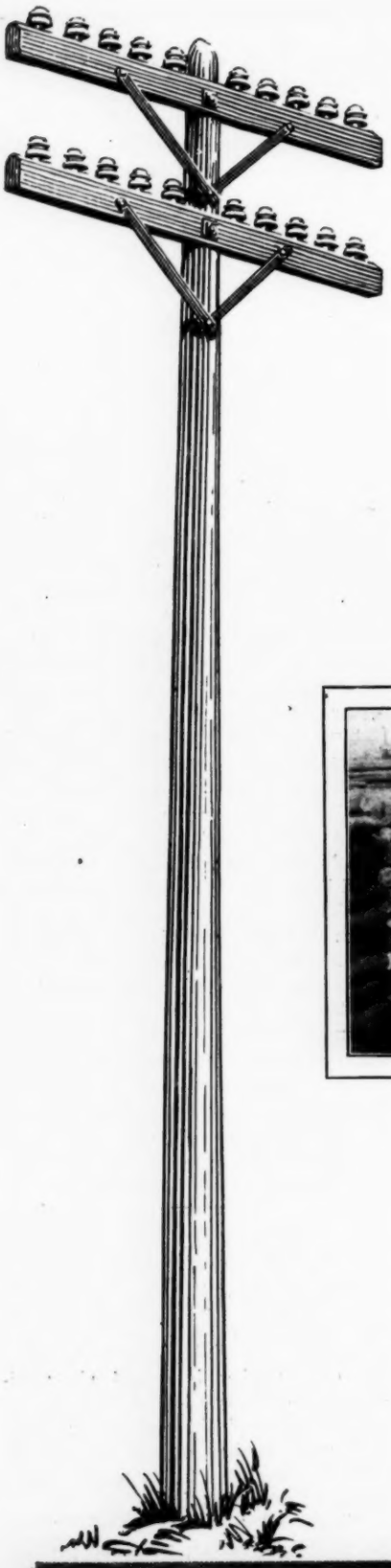
The Nebraska division auditor of receipts' force has again won the banner offered by the Northwestern Bell Telephone Co. for proficiency in work, the Iowa division finishing second and Minnesota third. The contest lasted a year.

The rate and station, subscribers' accounts and toll building supervisors' departments in Nebraska and the Iowa revenue accountant's and toll settlement supervisors' department won first place in their respective contests. The races are determined by the number of points scored, and the finals were: Nebraska, 690; Iowa, 599; Minnesota, 558.

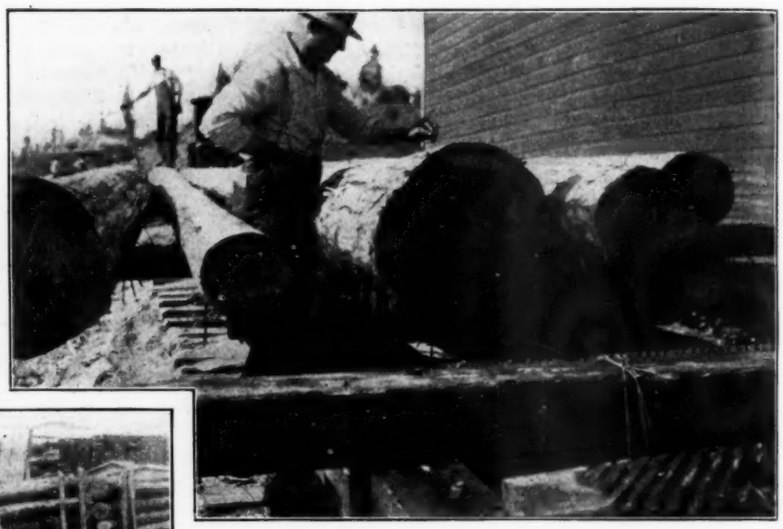
In a recent address before the Rotary Club of Chillicothe, Mo., Percy Redmund, general manager of the Southwestern Bell Telephone Co., outlined the relationship existing between the public and public utilities. Mr. Redmund who is an active civic worker is second vice-president of the Rotary Club of St. Louis.

He emphasized the fact that a thorough understanding on the part of the public is necessary to the proper functioning of a public utility.

"Nearly all trouble," he said, "from the world war down to minor personal differences, is the result of misunderstanding due to lack of knowledge. The public utilities, being very much a part of the world, are subject to the same laws and consequently, in the case of public utility trouble, the cause is generally misunderstanding due to lack of knowledge.



RED CEDAR



Assurances of Long Service

Among the materials for Outside Plants distributed through our Houses are Red Cedar Poles and Crossarms and Pins.

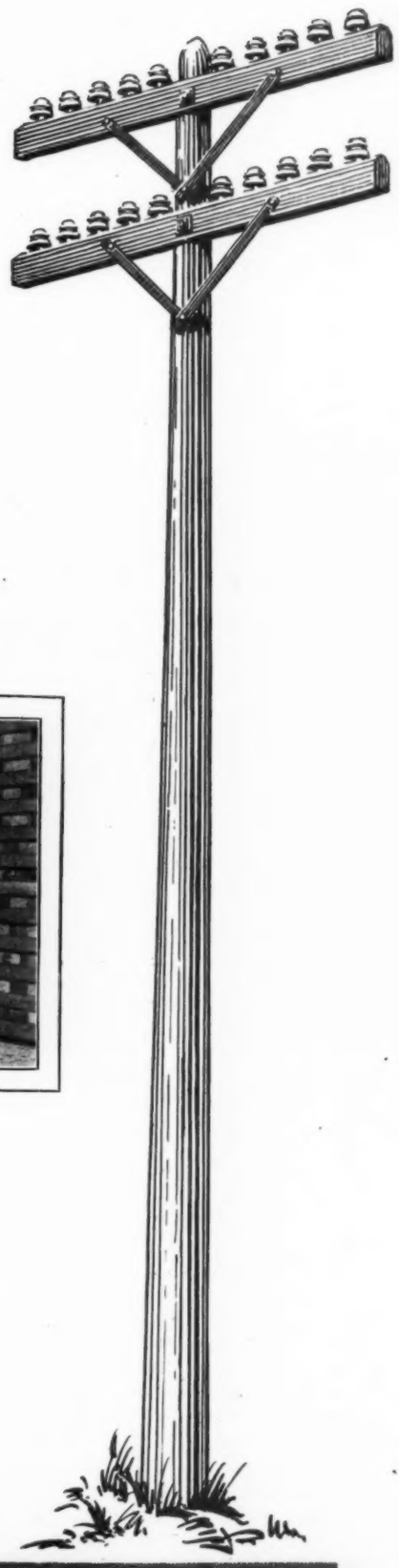
Well stocked yards at transportation centers simplify the work of buyers of these materials. All Poles, Crossarms and Pins are standard in size, long lived and of choice timber.

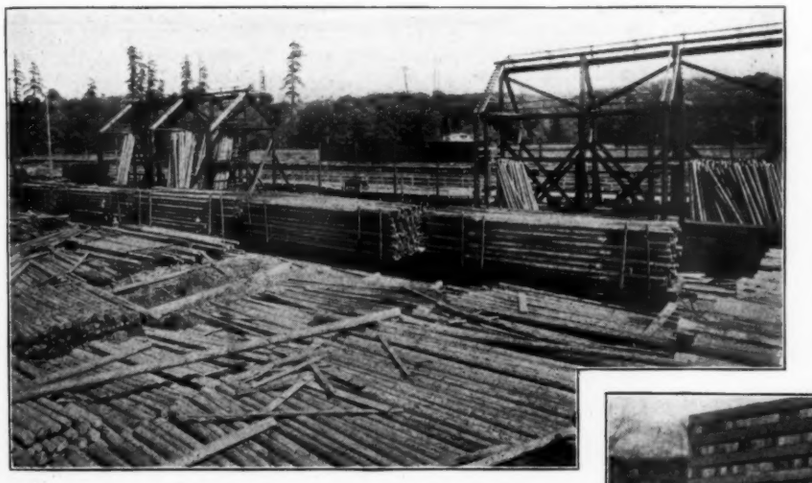
Poles are thoroughly inspected three times before shipment to assure soundness and consequent long life. For those users who seek the increased resistance to the elements afforded by treated poles, we can provide Pentrex Poles. In these, the butt is deeply impregnated with preservative, assuring a maximum of resistance to the effects of soil and climatic conditions.

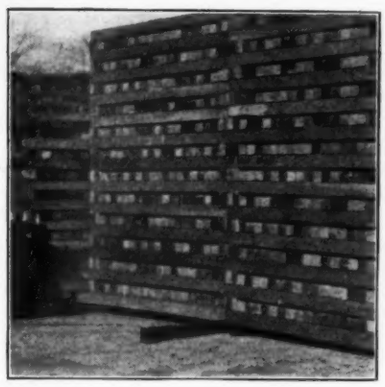
Western

Please tell the Advertiser you saw his Advertisement in TELEPHONY.

POLES
CROSS ARMS-PINS







Facilities That Conserve Working Capital

To assist its customers in keeping their working capital liquid is the function of a supplier.

Summed up, the desired result is most nearly attained when large, diversified stocks are readily accessible near customers. This may mean transportation facilities or actual physical location of the stocks.

Western Electric Stocks are large, distances to them comparatively short, transportation facilities numerous. Actual nearness and every other facility exists that develops these advantages to the maximum.

The user of electrical goods may safely keep his stock and his investment of working capital at the minimum by considering the stocks at our nearby House as his own.

Electric

"A well distributed ownership of public utility securities is fundamentally right and is necessary for the success of the service. It is further necessary that the public, as well as the management, recognize this.

"It is only when the three interests —employe, patron and owner—are properly balanced in public opinion that the mandates of this final authority will be true and purely in the interest of the public need."

The Cokato Telephone Co., Cokato, Minn., is experiencing difficulty in establishing an increased schedule of rural rates. Some 235 of its rural subscribers discontinued their service because of an increase of 25 cents a month.

The company is now carrying on an educational campaign through the weekly paper published at Cokato, the copy being furnished by the Minnesota Telephone Association, through Secretary J. C. Crowley, Jr.

In a recent issue of the Cokato paper appeared this "Card of Thanks":

"We wish to thank the following people who responded to our call for help Monday morning when our barn was burned to the ground: Mr. and Mrs. A. O. Norton and son, Walter; Robert Jarppi, W. E. Onkka, Walter Karjalahti, Ed Turnquist, Emil Johnson, and Mr. and Mrs. Julian Erickson. The assistance of these people saved the rest of the farm buildings.

"Especially do we wish to thank the telephone company for its prompt and efficient service that made possible the reaching of these people.—Mr. and Mrs. A. T. Rustad."

In the issue of the following week this news item was reproduced as an advertisement of the Cokato Telephone Co. Three-column space was used so that there was plenty of white space all around the item.

Above the item was the caption in bold face type, "Not What it Costs, but What it Saves." There was no other comment —just the line "From the Cokato Enterprise, July 20, 1922, followed by the words "The Cokato Telephone Co."

A story is told of an Irish lawyer, who, being asked how he always managed to get a decision from the jury, replied, "I make 'em understand!

"First I tell 'em what I'm going to tell 'em; then I tell 'em; and then over and over I tell 'em what I told 'em."

In the foregoing lies one of the greatest elements for success in advertising. Don't use the intermittent type of publicity, wherein an advertiser "tells 'em what he is going to tell 'em," and then doesn't follow up this lead with conscientious, continuous telling.

The way to advertise is the method of the Irish lawyer of first "tell 'em what you are going to tell 'em"; then "tell 'em"; and then many times "tell 'em what you told 'em."

Details concerning the organization and financing of the Bell Telephone system are presented in "Bell Telephone Securities," a book of 52 pages, put out by the Bell Telephone Securities Co., Inc., of New York.

The book is designed for the use of bankers and investment houses and contains numerous tables of statistics pertaining to the American Telephone & Telegraph Co., and its various subsidiaries, with financial statements and detailed descriptions of their security issues.

Statistics of the Manufacture of Telephone Apparatus.

Statistics regarding the manufacture of telephone apparatus for 1919, 1914 and 1909 have just been published by the Department of Commerce, Bureau of the Census, Washington, D. C.

The aggregate value of all telephone apparatus, parts and supplies produced in 1919 shows an increase of $23,398,702, or 102.6 per cent over that reported for 1914. Private branch exchange switchboards, in 1919, show a value of $2,287,122, compared with $448,203 in 1914, an increase of 410.3 per cent. For the same period the value of automatic switchboards increased 331.6 per cent.

The detailed figures are:

	1919.	1914.	1909.
Central switchboards:			
Manual—			
Central battery—			
No. ..	1,330	.....	.....
Value .	$6,500,560	$10,701,764	
Magneto—			
No. ..	4,594	.....	.....
Value .	$1,344,404	$374,851	
Automatic—			
Value ..	$4,327,516	$1,002,722	
Substation instruments:			
Central battery—			
No.	642,093	641,082	
Value ..	$3,839,978	$3,916,869	
Magneto—			
No.	280,502	216,879	
Value ..	$3,276,604	$1,799,834	
Interior systems:			
No.	173,799	62,258	
Value	$1,578,778	$510,509	
			$10,137,534
Private branch exchange switchboards:			
No.	6,880	3,693	2,252
Value	$2,287,122	$448,203	$369,915
Parts and supplies:			
Value	$23,059,380	$4,060,888	$3,751,908
Total value.	$46,214,342	$22,815,640	$14,259,357

Wireless Telephone Service Between Scandinavian Cities.

Radiotelephone service between Copenhagen and Bornholm is to be opened immediately. The Waldemar Poulsen system has been used, and the fees charged will be lower than for telegrams. This is the first Scandinavian overseas radiotelephone service.

DE SARNAC'S FOLLY

By Miss Anne Barnes

Traveling Chief Operator, Iowa Independent Telephone Association, Des Moines, Iowa

Upon the bleak coast of Maine, where the chill blasts of the northern Atlantic whistle through the great pines and the waves beat upon the rocky shore, there stands upon a hillside, overlooking the sea, the skeleton of a dwelling place. It is indeed a monument to the demons of lack of purpose—this unfinished mansion.

Fifty years ago there came to the little town by the sea a Frenchman named De Sarnac. He spent his money freely and the townspeople looked upon him as a great man. He bought a fine piece of ground upon the hillside and commenced the building of a palatial residence.

Just in the middle of its building, he gave orders for the workmen to cease work. The Frenchman left the little hamlet and was never heard of again. Today the people of the town refer to the uncompleted and rotting frame as "De Sarnac's folly."

On every side we see evidence of "De Sarnac's folly" in our own and in our friends' lives. Perseverance and the following of an idea or ideal to completion is a desirable and profitable quality in anyone.

Why do we start something that we can never hope to finish? Or, perhaps we hope to finish what we commence, but the good intention becomes simply another paving stone to a warmer climate. Good intentions are wonderful if carried out, but if not they had better never been formulated.

Someone has coined a word, "stick-to-it-iveness." That is what is needed most to overcome our trouble. A year or two after efforts on a certain endeavor cease, we look back and say, "How far along I would have been if only I had kept on!" We can see our faults in retrospection, but we are unable to visualize our future errors.

Are you this type of person? Look over your own past and present and endeavor to eliminate "De Sarnac's Folly" from times to come.

Commissions, Courts and Councils

Discussion and Rulings of State Bodies Having Supervision Over Telephone Companies—Decisions of Courts in Matters of Interest to Public Utilities and Actions of City Councils Relative to Franchise, Rates and Service

Appellate Court Rules Against Illinois Bell at Ottawa.

Decision in favor of the city has been handed down by the appellate court at Ottawa, Ill., in the action against the efforts of the Illinois Bell Telephone Co. to increase rates there.

The company intends appealing to the supreme court, according to Frank T. Miller, counsel for the Illinois Bell. Mr. Miller states that the public utilities commission—which issued a temporary injunction against higher rates—differs with the company on the legal points in the case.

Following the issuance of the temporary injunction, the company entered a motion to dissolve it. The motion was denied by three circuit judges sitting en banc in the circuit court at Ottawa. The appeal was prosecuted, which led to the appellate court's action.

The rate of increase was 30 per cent for each individual using a telephone, according to the mayor of Ottawa.

Indiana Company Gets Raise from 35 Cents to $1.25.

The Indiana Public Service Commission on August 2 authorized the Nine Mile Telephone Co. to increase its rates from 35 cents to $1.25 a month. The new rates are effective from July 1.

A hearing on the increase was held on June 30, at which it was shown that the receipts of the company were $276.59 less than the expenditures in 1921 and that many repairs are needed.

Missouri Good Roads and the Removal of Pole Lines.

In view of the fact that the roads composing Missouri's new highway system have been designated and indications point to the beginning of actual construction within a short time, the Missouri Telephone Association has issued a bulletin regarding the rules and policies of the State Highway Commission on telephone pole lines.

Reference is made in the bulletin to the Centennial Highway Law, approved August 4, 1921, which gives the commission authority to require the moving of any pole lines on the state highway, provided it does not order them moved entirely off the right of way.

The commission so far has not been requesting removal except in cases where the poles were actually in the way of construction work, the notice states. It has a big job ahead in carrying the good roads program through, and the association asks its members to co-operate in every way possible.

To the end that unnecessary expense and annoyance may not occur, the telephone companies are advised—before acting on a removal order—to make certain that it comes from one in authority and that the change ordered is to be the permanent location of the company's line.

The association offers its assistance to any member desiring to take up a matter with the commission or with its engineering office.

Illinois Bell Rate Hearings to Be Renewed in September.

After almost a year since its first effort to cut telephone rates in Chicago and vicinity the Illinois Commerce Commission will renew hearings on September 5. Last year the commission summoned the Illinois Bell Telephone Co. to show cause why rates should not be lowered.

Chester E. Cleveland, special city attorney, aided by Attorneys Daniel Roberts and Jacob Ringer and Engineer W. H. Crumb, has been preparing evidence to show that rates should be cut at least 10 per cent.

One of the principal arguments will be against the 4½ per cent payments to the American Telephone & Telegraph Co. It is also claimed that the company puts too much into its depreciation fund.

Iowa Town Without Telephone Service for Three Months.

After three months without telephone service, Westfield, Iowa, has once more been put on the map of the telephone lines.

At the time of the big storm in April, the exchange was removed and this has not been reinstated but a system of trunk lines installed instead. The merchants have been given one line, the elevators, lumber yards and garages another and the residences divided according to the sides of the streets. The Bank of Westfield is using radio service.

Co-operative Company Not Required to Procure Certificate.

The provision of California public utilities act of 1919, sec. 2, subd. (t), defines a telephone corporation as a corporation or person operating or managing any telephone line for compensation within the state. It does not extend the supervision of the public utilities commission over a telephone line operated by a non-profit co-operative association for the exclusive use of its members who paid a sufficient sum therefor to operate the system.

It is not necessary for such association to procure from the commission the certificate of public necessity and convenience required for telephone corporations by public utilities act of 1915, sec. 50 (a).

The fact that the co-operative association uses the public highways for its lines does not establish that it is a public utility subject to the jurisdiction of the utilities commission. People ex rel. Knowlton & Orange County Farmers & Merchants Association; District Court of Appeal, California; 204 Pacific, 873.

Cincinnati Bell Goes to Ohio Supreme Court Again.

After receiving two adverse rulings from the Ohio Public Utilities Commission on July 31, the Cincinnati & Suburban Bell Telephone Co. appealed to the supreme court.

The commission first denied the application for a rehearing on the order of July 11, which nullified the proposed new schedule of rates upon the ground that they did not conform to the order of the commission carrying out the mandate of the supreme court.

The schedule filed after the order of July 11 was also rejected, upon the ground that the commission had not amended its former order.

The company claims that the July, 1920, rates which the commission ordered restored are not just and reasonable and that the order should be set aside. It also asks a writ staying the execution of the commission's ruling that about $400,000 excess charges collected in the last 18 months be refunded.

Petition Commission to Order Company to Bar Subscribers.

The plenary powers of the Nebraska State Railway Commission have been called upon in an unusual manner. A petition, prepared by attorneys hired by 13 subscribers to two rural lines running out of the city of West Point, has been filed with it asking it to forbid the telephone company operating the exchange restoring service to Henry Keomann and Mrs. Katherine Stratmann, who formerly were connected with these lines.

It is set out in the petition that the two persons named were cut off from service last January because of their using vile, vulgar and obscene language towards each other, as a result of a neighborhood row. When other persons on the lines objected, they were abused and greatly annoyed.

They say that if the pair are permitted

Name of Company.	Town or City.	Population.	Type of equipment.	Total No. of telephones.	Net rate per annum: 1-party business.	2-party business.	1-party residence.	2-party residence.	4-party residence.	Rural business.	Rural residence.	Rural switching service.
Atlanta, Mo.	Atlanta	523	Mag.	.....	*$27.60	$.....	*$15.60	*$15.00	$.....	$.....	$.....	$.....
Kandiyohi, Minn.	Kandiyohi	185	.....	786	30.00	.....	18.00	.....	15.00	.....	18.00	4.20
	Raymond	334										
	Svea	75										
[1]Wisconsin, Wis.	Waukesha	9,704	.....	.....	48.00	42.00	27.00	22.80	21.00	.....	24.00	7.50
Mauston, Wis.	Mauston	1,701	Mag.	.....	36.00	33.00	30.00	27.00	24.00	.....	21.00	.....
Tomah, Wis.	Tomah	3,419	C. B.	1,360	33.00	30.00	24.00	21.00	19.80	.....	.....	.....
			Mag.	.....	30.00	27.00	22.20	20.20	18.00	24.00	21.00	7.50
Melville, Wis.	La Fayette	.....	.....	.....	.....	.....	.....	.....	.....	.....	21.00	.....
[2]Farmers Lk. Shore, Wis.	Algoma	2,082	Mag.	.....	.....	.....	.....	.....	.....	.....	19.00	.....
Indiana Bell, Ind.	Muncie	25,653	.....	.....	60.00	54.00	36.00	30.00	24.00	30.00	24.00	.....
Rosendale, Wis.	Rosendale	450	Mag.	340	24.00	21.00	20.00	18.00	16.00	.....	.....	.....
	Eldorado	114	.....	.....	.....	27.00	.....	.....	18.00	.....	18.00	.....
Gotlieb, Wis.	Lewiston	.....	Mag.	104	.....	.....	.....	.....	.....	.....	15.00	.....
Council Grove, Kan.	Council Grove	2,405	.....	.....	*27.00	.....	.....	.....	*15.00	.....	*15.00	.....
Philadelphia, Ind.	Philadelphia	182	.....	.....	.....	.....	.....	.....	.....	.....	18.00	.....
Kansas City, Kan.	Overland Pk.	100	Mag.	.....	*54.00	*33.00	*27.00	.....	*21.00	*30.00	*[2]24.00	.....
	Shawnee	427										
	Marrian	127										
	Bethel	25										
	Vance	120										
Tamarack, Wis.	Arcadia	1,212	Mag.	328	.....	.....	.....	.....	.....	15.00	15.00	.....
Farmers Mut., Wis.	Baraboo	6,324	Mag.	413	.....	.....	.....	.....	.....	.....	21.60	.....
	North Freedom	647	.....	84	.....	.....	.....	.....	.....	.....	16.80	.....
Rushcenter, Kan.	Rushcenter	250	.....	.....	24.00	.....	.....	.....	.....	.....	.....	.....
Roxbury, Kan.	Roxbury	100	.....	.....	24.00	18.00	18.00	.....	12.00	.....	15.00	7.20
Lane, Kan.	Lane	272	Mag.	.....	.....	.....	.....	.....	.....	.....	.....	7.20
Danville Rural, Kan.	Danville	200	Mag.	.....	.....	.....	.....	.....	.....	.....	.....	8.00
Prairie Farm, Wis.	Prairie Farm	368	Mag.	.....	.....	.....	.....	.....	.....	.....	14.00	.....
Columbus, Ind.	Columbus	9,310	Mag.	.....	36.00	30.00	24.00	.....	.....	.....	.....	.....
	Elizabeth	238	C. B.	.....	24.00	.....	21.00	.....	15.00	24.00	18.00	.....
	Grammer	125										
	Clifford	210										
Bartlett, Neb.	Bartlett	112	.....	.....	.....	.....	.....	.....	.....	24.00	18.00	.....
Rewey, Wis.	Rewey	329	Mag.	281	12.00	.....	11.00	.....	.....	.....	10.50	[3]35.00
Necedah, Wis.	Necedah	1,054	Mag.	235	36.00	33.00	24.00	21.00	.....	.....	.....	6.00
[5]Oakland City, Ind.	Oakland City	2,370	C. B.	.....	18.00	.....	12.00	.....	.....	.....	.....	.....
Zumbro Falls, Minn.	Zumbro Falls	208	Mag.	237	24.00	21.00	15.00	.....	12.00	.....	12.00	.....
Farmers' Inter-Co., Wis.	Kilbourn	1,170	Mag.	673	27.00	24.00	21.00	18.00	.....	.....	18.00	8.00
Michigan State, Mich.	Niagara, Wis.	425	.....	206	36.00	30.00	24.00	.....	21.00	[5]27.00	[5]24.00	.....
	Florence	1,684	.....	.....	.....	.....	.....	.....	.....	[6]30.00	[6]27.00	.....
Platteville, Wis.	Platteville	4,452	Mag. C. B.	.....	.....	.....	.....	.....	.....	.....	.....	6.00

*Desk sets $3.00 per year extra. [1]P. B. X. two-way trunk $18.00. [2]Bethel and Vance $18.00. [3]Reduced rates. [4]Per line. [5]Within six miles. [6]Beyond six miles.

New Rate Schedules Approved by Various Public Utility Commissions and Published in "Telephony" During July.

to again have service, they will use it as they see fit, that the other subscribers will be subjected again to their offensive language and abuse, and that the unfriendly feelings roused by the former protest that cut off the service will be vented in new forms of annoyance.

The petitioners also say that to restore them to service will demoralize it and destroy the peace and harmony of the community, as well as causing the families and children to suffer moral and social injury. Seventeen users of the telephones, mostly women, join in the protest. The neighborhood is entirely German.

Want Company to Fix Lines Down Before Its Ownership.

Sixteen rural patrons of the Northwestern Bell at St. Edwards have asked the Nebraska State Railway Commission for relief.

The situation is a peculiar one. The lines to which these subscribers were attached were badly damaged by a sleet storm on April 10. Before the Bell got around to fix them up again it sold out to the Skeedee Telephone Co., a locally-owned company, and the latter has refused to restore the service.

When the Skeedee company purchased the Bell it undertook to take over only certain equipment. According to the petitioners the Skeedee officials do not seem inclined to accept any responsibility for restoring service to them, and they want the company ordered to do so.

The company has been asked to explain why it has not given service in the four months since the storm swept the lines out of commission.

Utah Cities Prepare to Fight Commission's Ruling.

Resolutions protesting against the toll rates recently fixed by the Utah Public Utilities Commission for the Mountain States Telephone & Telegraph Co. were adopted at mass meetings held in Murray and Holliday after the granting of the toll increase.

Subscribers who were present signified their intention to discontinue service as soon as the new rates go into effect.

At the Murray meeting Orson J. Hyde, commercial manager of the company, spoke of the necessity for the new schedule. Upon his proposal, a committee composed of two members from each of the three districts concerned was appointed to confer with telephone officials for the purpose of coming to some settlement.

Wisconsin Against Free Tolls—Dismisses Petition.

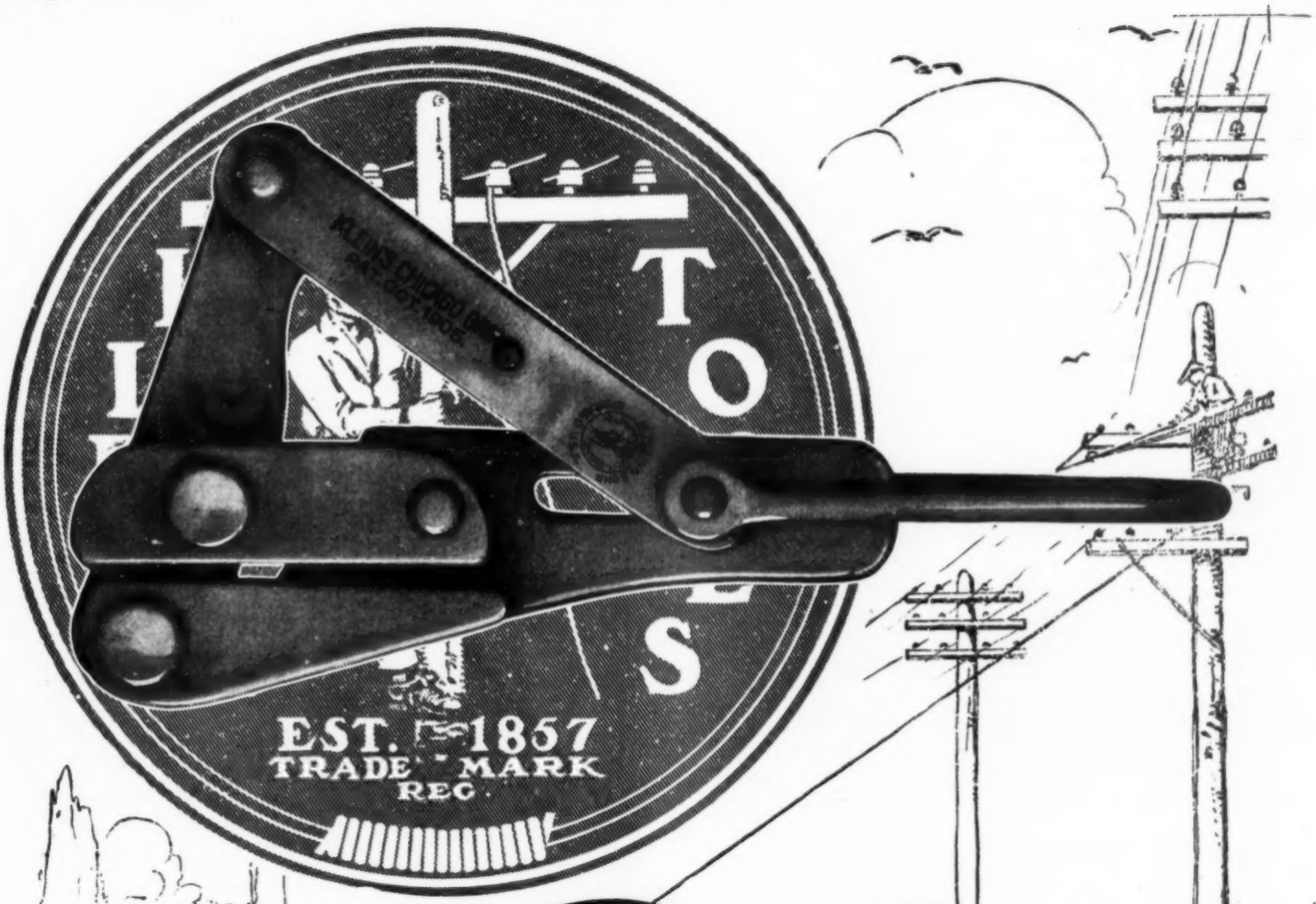
An investigation by the Wisconsin Railroad Commission of the affairs of the Farmers Union Telephone Co., of Cross Plains, and the Waunakee Telephone Co., of Waunakee, proved the complaints on the toll charge between Middleton and Waunakee to be unreasonable. Accordingly, the application to have five-cent toll abolished was denied by the commission on August 1.

Prior to March 1, 1921, the subscribers of the two companies were given free service between these points but it was over a loaded line and was unsatisfactory as the line was busy much of the time. On March 1, 1921, the two companies completed a full metallic toll circuit between the two exchanges and established a toll rate of five cents per message.

In upholding this rate, the commission said that it "has in many cases taken the stand that free toll service between communities was objectionable in that it results in burdening all the subscribers with the cost of the free service, regardless of the individual use made of the service, and should not be permitted unless it can be conclusively shown that the two communities are interdependent and that the use of the service is practically universal.

The two communities are about the same size, each has its own commercial establishments, and each has good transportation communication with Madison, which is as close to each village as they are to each other. From this, the commission concluded that they were fairly independent of each other.

It was also shown that only a limited number of subscribers are interested in the re-establishment of free service and that a large majority have little occasion to use the toll service. This was proved



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by the fact that the toll calls on this line have averaged less than seven calls per day during the last year although the two companies served well over 1,000 subscribers during that period.

In view of these facts and the fact that neither of the companies involved earned an adequate return during the year 1921, the commission said it would be unreasonable to require the re-establishment of free service.

The financial statements showed that the revenue received by the two companies under the five-cent toll charge between Waunakee and Middleton amounts to about $125 per annum and that the cost of maintenance of the line plus depreciation and return upon the toll investment is considerably in excess of this amount.

For all of these reasons, the commission dismissed the petition to restore free service.

Furnishes Good Service—Another May Not Build In.

The Wisconsin Railroad Commission on July 19 denied the petition of the Watertown Telephone Co., of Watertown, for authority to extend its lines into the towns of Emmet and Lebanon, which territory is already served by the Lebanon Telephone Co.

The Lebanon company continues its lines for toll purposes into Watertown, and the commission found that it had been put to considerable expense in installing the equipment necessary to render this service.

Certain persons living near Lebanon wished direct connection with Watertown, but the commission was of the opinion that as there was no complaint as to the quality of service furnished by the Lebanon exchange and the toll charge is only 3 cents, the duplication of equipment is not warranted.

Raises Rates, Disapproves Subscriber-Owned Instruments.

Effective August 1, the Marquette & Adams County Telephone Co., of Oxford, Wis., was authorized to increase its rates. The order was entered by the Wisconsin Railroad Commission on July 19.

The company operates exchanges in Brooks, Packwaukee, Endeavor, Oxford, and Easton, the last exchange being maintained jointly with the Friendship Telephone Co. The total number of subscribers is 589, of which 71 receive switching service.

The annual report of the Marquette & Adams County company set forth that its property investment to serve these subscribers amounts to $13,560. The average investment per instrument is $26.18, which is about half of the average for plants of a similar character. This is explained by the fact that about 450 subscribers own their instruments.

It has been the custom of the company to allow a discount of 25 cents a month on subscriber-owned instruments. Regarding this, the commission says that the division of ownership of equipment between company and subscriber does not result in the highest type of service. It strongly recommends that the company make provision for the purchase of instruments now owned by its subscribers.

As the variation in the report of operating expenses for 1920 and 1921 indicated that there was no distinction made between operating costs and costs chargeable to depreciation and capital account, the commission used the average expense of similar exchanges—which is $13 per instrument—as the basis upon which to fix the rates.

The following schedules give the old and new rates of the company:

Business:	Old	New
One-party	$1.50	$1.75
Two-party	....	1.60
Residence:		
One-party	....	1.60
Two-party	1.35	1.50
Three or four-party	1.25	1.40
Rural:		
Residence	1.25	1.50
Switching service	.67	.67

These rates are for grounded line service. Where subscribers are served on metallic lines, the company is authorized to charge $3 a year more than the new schedule listed above. This, however, does not apply to any switched lines which are metallicized.

The company had requested that the switching rate be adjusted, but the commission decided that $8 was fair for the class of service rendered and should remain.

Summary of Commission Rulings and Schedule of Hearings.

CALIFORNIA.

August 5: Application filed by city of Los Angeles for a survey and investigation of the service conditions of the Southern California Telephone Co. and that pending the bringing of service up to standard the rates be reduced.

It is charged in the application that the company has not lived up to its agreement to restore "normal conditions in regard to present service as well as to installations that should therefore exist in the greater part of the entire Los Angeles exchange area by the end of July of this year."

ILLINOIS.

Sept. 5: Hearings to commence again on rates of Illinois Bell Telephone Co. for service in Chicago and vicinity.

MISSOURI.

August 2: Effective date of rate schedule PSC MO. No. 3 of Mt. Vernon Telephone Co., of Mt. Vernon, suspended until December 29, 1922, to give opportunity for investigation of objections made to increase.

NEBRASKA.

August 7: Protest filed by various subscribers of the Northwestern Bell Telephone Co. at West Point against the restoration of service to Henry Koeman and Mrs. Katherine Stratman because of the objectionable language they had used and which led to their being cut off; referred to the company for action.

August 8: Complaint filed by former subscribers of Northwestern Bell Telephone Co. at St. Edwards alleging refusal of successor company, the Skeedee Independent Telephone Co., to restore rural lines that went down in sleet storm of April 10; company asked to explain reasons for refusal.

August 8: Application filed by Ohiowa Telephone Co., of Ohiowa, for permission to destroy certain obsolete records.

August 9: Application filed by the Blair Telephone Co., of Blair, for validation of extension set tariff.

NEW YORK.

August 15: Hearing at New York City on petition of New York Telephone Co. for increased rates, tolls and rentals in New York City.

August 15: Hearing at New York City in matter of state-wide affairs of New York Telephone Co.

NORTH DAKOTA.

August 7: Greaves Telephone Co., of Kenmare, given permission to dismantle five miles of line in Fairbanks township.

August 7: Authority given Greaves Telephone Co., of Kenmare, to sell part of its lines out of Powers Lake.

Sept. 20: Hearing at Park River on rates, rules and practices of Park River Telephone Co.

OHIO.

July 31: Application of Cincinnati & Suburban Bell Telephone Co. for a rehearing on order of July 11—wherein proposed rate schedule was rejected—denied. Schedule which company had presented later also rejected.

VIRGINIA.

August 5: Hearing at Richmond on complaint of S. C. Agree and others against the telephone rates of the Roanoke & Botetourt Telephone Co., of Fincastle.

WISCONSIN.

August 1: Dismissal entered of petitions of Wm. Spohn, Julius Diederich, and others, that the Farmers Union Telephone Co., of Cross Plains, and the Waunakee Telephone Co., of Waunakee, be directed to restore free toll service between Middleton, an exchange of the former company, and Waunakee.

August 21: Hearing at Madison on application of Commonwealth Telephone Co., of Madison, for increased rates at Edgerton. U-2725.

August 24: Hearing at Madison on alleged refusal of service to McDermott Bros. by a rural telephone company known as Line No. 800, out of Evansville. U-2747.

August 28: Hearing at Madison on application of Denmark Farmers & Merchants Telephone Co., of Denmark, for higher rates. U-2759.

August 28: Hearing at Madison on petition of Brown County Telephone Co., of Denmark, for authority to advance rates. U-2760.

August 29: Hearing at Madison on application of Knowlton Telephone Co., of Knowlton, for permission to increase rates. U-2761.

August 29: Hearing at Dill Depot on complaint of T. J. Helbig and others against United Telephone Co. U-2912.

August 30: Hearing at Madison on application of Hillsdale Western Telephone Co., of Hillsdale, for permission to increase rates. U-2763.

August 30: Hearing at Madison on alleged refusal of Interurban Telephone Co., of Lakemills, to furnish service to Frank Meyer and others. U-2757.

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"less cost per month of service"

Rate Power Under Commission Law

(Continued from page 14.)

utility in violation of law. Reference to one or two authorities may be permitted:

In Interstate Commerce Commission v. Baltimore & Ohio Railroad Co., 43 Fed. 37 (affirmed 145 U. S. 263), Judge Jackson, subsequently Mr. Justice Jackson, says at pages 50 and 51:

. . . Subject to the two leading prohibitions that their charges shall not be unjust and unreasonable, and that they shall not unjustly discriminate, so as to give undue preference or advantage, or subject to undue preference or disadvantage persons or traffic similarly circumstanced, the act to regulate commerce leaves common carriers as they were at common law, free to make special contracts looking to the increase of their business, to classify their traffic, to adjust and apportion their rates so as to meet the necessities of commerce, and generally to manage their important interests upon the same principles which are recognized as sound, and adopted in other trades and pursuits. . . .

This language has been quoted with approval by the Supreme Court of the United States in several cases.

In Interstate Commerce Commission v. Louisville & Nashville Railroad Co., 227 U. S. 88, the court says at page 92:

Under the statute the carrier retains the primary right to make rates, but if, after hearing, they are shown to be unreasonable, the commission may set them aside and require the substitution of just for unjust charges. The commission's right to act depends upon the existence of this fact, and if there was no evidence to show that the rates were unreasonable, there was no jurisdiction to make the order. . . . A finding without evidence is beyond the power of the commission. An order based thereon is contrary to law, and must, in the laguage of the statute, be set aside by a court of competent jurisdiction.

What is said in these cases as to the act to regulate commerce is applicable to commission laws generally.

The supreme court of the state of New York in a case later affirmed by the court of appeals of that state, [1]said:

Under the interstate commerce act, it has been held that a determination by the commission that the rates were unjust and unreasonable is a statutory condition precedent to the exercise of the power to fix reasonable rates for the future (A., T. & S. F. Ry. Co. v. U. S. (Com. C.) 203 Fed. 56), and we think a similar condition precedent exists under the New York public service commission law.

The following excerpt is made from the opinion of the New York State Court of Appeals in this case:

There is no express finding that the new rates were unreasonable; there is a long discussion of the benefits which the commission thought would result to the respondent from adopting the policy of low commutation rates. In this course, it took into account consideration which were really not before it. The question what general policy should be adopted by the respondent in developing suburban trade was one to be decided by it, and not by the state.

The methods and rates which it should apply to the development of any policy were subjects for regulation, but the question whether the welfare of the road would be best subserved by one policy or another was a subject to be decided by the officers and stockholders of the corporation. It seems to me the commission was more or less influenced by this consideration which was irrelevant.

It has been seen that the commission laws do not in terms take from the utilities the primary power to make rates. The question remains: To what extent has the legislature exercised its own legislative power to make rates? Has it so exercised this power as to impose a limitation upon the powers of the utilities by indirection?

In a recent case[2] the Supreme Court of Michigan has answered this inquiry in language applicable to utilities generally, though directly referring only to railroads. It said:

The legislature has not fixed the freight rates to be charged by complainant beyond this. It has prohibited and made unlawful every unjust and unreasonable charge.

Continuing, it defined the powers of the commission, saying:

It has confided to the Michigan Railroad Commission the power, with the dutty, to ascertain, in proper cases, whether a rate is reasonable and just or unreasonable and unjust, and to thereupon make an order in conformity with the facts.

These statements are true generally as to these commission laws. The legislatures have not themselves exercised the rate making power. They have left the rate making power primarily in the utilities, vesting in the commissions power to act only in cases where it has been abused.

Having before it the question whether the interstate commerce act authorized the commission to make rates, and commenting upon what Congress might have done to solve the situation presented to it when it enacted the interstate commerce act, the United States Supreme Court[3] says:

There were three obvious and dissimilar courses open for consideration. Congress might itself prescribe the rates; or it might commit to some subordinate tribunal this duty; or it *might leave with the companies the right to fix rates, subject to regulations and restrictions, as well as to that rule which is as old as the existence of common carriers, to wit, that rates must be reasonable.* There is nothing in the act fixing rates.

The legislatures of the various states, like the Congress, adopted the third course.

A collateral question, perhaps, should have very brief consideration: whether the rates proposed or being charged are reasonable—that is, whether the condition precedent to the commission's jurisdiction exists is a judicial question and its determination is a judicial act. Quoting again from the Supreme Court[3]:

It is one thing to inquire whether the rates which have been charged and collected are *reasonable*—that is a judicial act; but an entirely different thing to prescribe rates which shall be charged in the future—that is a legislative act.

This determination must be based upon a hearing, of which the utility has had notice, and at which it has the right to introduce evidence and cross-examine. The commission may not act arbitrarily, nor can its finding be sustained upon the assumption that it is supported by some facts other than those disclosed at the hearing. Whether the commission has jurisdiction—that is, whether the evidence establishes the fact that the company's action as to rates has been unlawful—is a judicial question which may be reviewed in the courts.

Since the jurisdiction of the commission depends upon a finding that the utility has infringed the statutory rule, it becomes of the greatest importance to clearly apprehend just what just and reasonable rates are.

First, there is no synonymity between unjust and unreasonable rates and confiscatory rates. The more or less widespread opinion that a rate which returns more than enough to escape the charge of confiscation is extortionate and unreasonable is without any support, either in the authorities or in reason.

If a just and reasonable rate meant a rate that would barely escape the charge of confiscation, it would mean that the business of public utilities must be done at a loss, and would negative the idea of regulation. It would mean that rates could not lawfully afford a return in excess of the mere cost of doing the business, this cost including the cost of obtaining the necessary capital.

If rates never could lawfully return any profit, then since at some times there must be losses, the ultimate result would be a loss upon the business as a whole. This conclusion is emphasized by the fact that in determining whether or not a rate is confiscatory, every presumption is in favor of the legality of the rate and every

[1]People ex rel. N. Y. C. & H. R. R. R. Co. v. Public Service Commission, 145 N. Y. S. 513.

[2]Detroit and Mackinac R. R. Co. v. Michigan R. R. Commission, 137 N. W. 337.

[3]Interstate Commerce Commission v. Cincinnati, New Orleans & Texas Pacific Ry. Co., 167 U. S. 479, 499.

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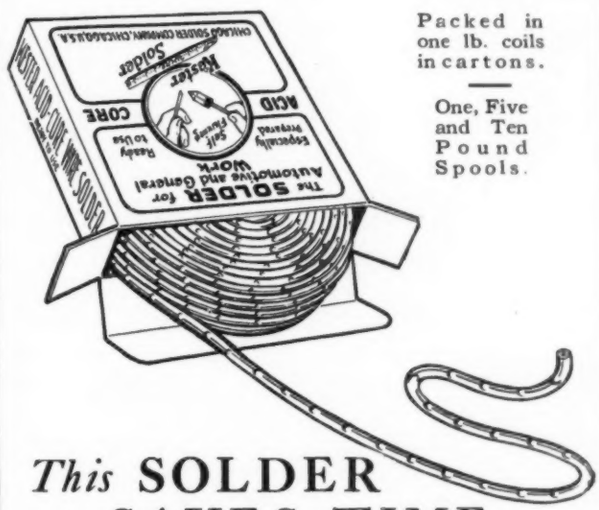

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fact must be established by clear and satisfactory evidence.

This would make the rule mean that no rate in excess of the mere cost of doing the business (including the cost of obtaining the necessary capital), resolving all doubts against the company, could be lawful, and would destroy the business.

Such a conclusion is inconsistent with the whole idea of regulation and with the framework of these statutes. The statutes fix a rule of just and reasonable rates, leaving the utilities to exercise their discretion, so long as they keep within this rule. Such a construction of the words "just and reasonable" as has been under discussion would fix simply a line, above which the rates would be unlawful because excessive, and below which they would be unlawful because confiscatory, and would leave no room whatever for the exercise of any discretion.

Under such a rule it may well be doubted whether the facts could be ascertained with sufficient accuracy to make it possible to fix a lawful rate for any specified time, but if this were possible, changing conditions would make a rate, lawful today, unlawful tomorrow, so that one incident to such lawful rates would be continuous rate making.

The very term "regulation" negatives such a contention. Regulate means "to govern by, or subject to certain rules or restrictions." As applied to utilities, it means the establishment of general rules which are to govern the utilities in their activities. It would be inaccurate to apply it to a law which, instead of establishing general rules to which the utility must conform, fixed a line with which it required the rates to coincide without any deviation whatever.

It may safely be concluded that the fact that a rate earns more than a mere fair return does not of itself warrant the conclusion that it is excessive or unreasonable.

What then do the words "just and reasonable" mean as used in these statutes?

They had an established meaning prior to the enactment of these statutes, and under the well-settled rule of statutory construction, must be taken as having been used in that sense in these statutes. The words "just" and "reasonable" are regarded by the authorities as substantially synonymous.

The basis of all business is that, upon the average, sound trades are beneficial to both parties to them. A merchant can continue his business because his goods are of more value to his patrons than the money which they pay for them, and because this money is of more value to him than his goods.

Where the benefit goes only to one party of the transaction, the business cannot exist. A merchant, whose customers are harmed and not benefited when they trade with him, will soon have no customers; and on the other hand, a merchant who himself loses every time he makes a sale, will soon be compelled to go out of business.

Public utilities are no exception to this rule. Unless the service of a utility is worth more to its patrons than the money which they pay for it, the service cannot be sold. The patrons will keep their money and forego the service.

Again, unless the money received for the service is worth more to the utility than the service—that is, unless it exceeds the cost of giving the service, this cost including the cost of obtaining capital—the business cannot continue because under such conditions there would cease to be utilities.

What justifies the carrying on of any business and insures its permanence is this spread between the cost of producing and selling what is sold and its value to the person who buys it.

These fundamental considerations determine the basis for the answer to the question: "What is a just and reasonable rate?"

It is a rate that justly and reasonably—that is, that equitably, as between the utility and its patrons—divides this spread. It is a rate that equitably divides this profit that arises out of the transaction of the business, giving a due proportion of it to the utility and to the subscriber.

If an attempt were made to give all of the profit to the patrons, this would remove every inducement to the utility to furnish the service and the business would not continue. On the other hand, if all of the profit were to go to the utility, there would be no inducement to the subscriber to take the service. It would be worth nothing to him, and so again the business would be discontinued. As was said[4] by Mr. Justice Swayze:

> On the one hand, a just and reasonable rate can never exceed, perhaps can rarely equal, the value of the service to the consumer. On the other hand, it can never be made by compulsion of public authority so low as to amount to confiscation. A just and reasonable rate must certainly fall somewhere between these two extremes, so as to allow both sides to profit by the conduct of the business, and the improvements of methods and increase of efficiency.
>
> Justice to the consumer, ordinarily, would require a rate somewhat less than the full value of the service to him; and justice to the company would, ordinarily, require a rate above the point at which it would become confiscatory. To induce the investment and continuance of capital there must be some hope of gain commensurate with that realizable in other business; the mere assurance that the investment will not be confiscated would not suffice. . . .
>
> The question is not what the aggregate profits of the utility may be. These depend very largely upon the volume of its business. It should never be forgotten that what commissions are authorized to regulate is rates, not profits. No state has attempted to authorize its commission to regulate profits.

The question always is whether any particular charge or schedule of charges to an individual or a community dealing with the utility is, considering the services rendered, an unreasonable exaction. As was said by Mr. Justice Brewer in the Cotting case:[5]

> Pursuing this thought, we add, that the state's regulation of his charges is not to be measured by the aggregate of his profits, determined by the volume of business, but by the question whether any particular charge to an individual dealing with him is, considering the service rendered, an unreasonable exaction. In other words, if he has a thousand transactions a day and his charges in each are but a reasonable compensation for the benefit received by the party dealing with him, such charges do not become unreasonable because by reason of the multitude the aggregate of his profits is large.
>
> The question is not how much he makes out of his volume of business, but whether in each particular transaction the charge is an unreasonable exaction for the services rendered. He has a right to do business. He has a right to charge for each separate service that which is reasonable compensation therefor, and the legislature may not deny him such reasonable compensation, and may not interfere simply because out of the multitude of his transactions the amount of his profits is large.
>
> Such was the rule of the common law even in respect to those engaged in a quasi public service independent of legislative action. In any action to recover for an excessive charge, prior to all legislative action, who ever knew of an inquiry as to the amount of the total profits of the party making the charge? Was not the inquiry always limited to the particular charge, and whether that charge was an unreasonable exaction for the services rendered?

This rule is amply established by the authorities as well as by economic considerations. While the rule is clear, it is necessarily flexible. It is impossible to deduce a mathematical formula through which it may be applied. The cost of rendering the service may be determined with reasonable accuracy. Its value in dollars is not susceptible of the same measurement, but may be ascertained with sufficient accuracy.

There is no hard and fast line showing just where the rates should fall to equitably divide the spread between the cost of the service and its value, as between the utility and its patron. What is the proper line is not an arithmetical question. It is an economic question. Its solution demands the exercise of sound trained judgment.

The question arises as to each specific rate, and is whether that rate is equitable as between the utility and the class of patrons to which it applies. Is the rate fair to the utility? Is it fair to its patrons?

In addition to the governing fundamental factors which require that the rate be more than the cost and less than the

[4]Public Service Gas Co. v. Board of Public Utility Commissioners, 87 Atl. 651, 655.

[5]Cotting v. Kansas City Stock Yards Co. 183 U. S. 79.

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value of the service, there are frequently many other considerations which may properly be taken into account.

The rule of just and reasonable rates is as essential to its patrons as it is to the utility. The value of every public service so tremendously exceeds what its patrons pay for it that there is no case where they can afford to forego good service in order to obtain lower rates. The value of service is only completely demonstrated when there is difficulty in obtaining it; under such conditions it soon develops that cost is not the material factor. The only question is how to obtain service.

A utility that is not prosperous cannot render either good service or cheap service. To render good and efficient service, and to do this economically, requires an adequate amount of money.

To take away from the utilities the power to make rates and to attempt to secure service through publicly established rates intended to afford a return barely equal to the cost of doing the business, including the cost of obtaining the necessary capital, would result in a tremendously expensive failure.

Aside from the considerations that have already been suggested, this would be to put the business upon a cost plus basis—a basis that is never adopted in ordinary business transactions where any other course is available. It would remove all incentives to economy, good management and progress. It would be in the case of public utilities what it has always been in every other class of business—extravagant and inefficient.

The interests of the utilities and of their patrons are identical in this matter. They will both prosper most under what the common law called just and reasonable rates—that is, rates that afford to each party to it a profit from the transaction.

Coal-Tar as a Timber Preservative and Its Application.

For many years coal tar has been used extensively as a timber preservative, states W. W. Odell, fuel engineer, in technical paper No. 268, just issued by the United States Bureau of Mines. The antiseptic and preserving properties of coal tar are recognized throughout the world.

Tar prevents decay, not only by its antiseptic properties but also by its waterproofing qualities, whereby the pores of the wood are filled. It is used to preserve fence posts, telephone poles, and heavy building timbers, and for such purposes is applied with a brush or the timbers are dipped in hot water-free tar.

By far the largest proportion of the tar used for preserving timber, however, is mixed with creosote oil. Large quantities of mixtures of this nature are used annually to treat paving blocks, railroad ties, crossarms, and telephone poles. The brush method is not as common for this purpose as the closed-tank pressure method, wherein the actual absorption of the preservative is many times greater.

Although it is generally understood that some of the tar distillates are superior to tar for preserving timber (especially when the proportion of free carbon in the tar is high), the difference in first cost favors tar.

When used for treating timber, the tar should be hot and free from water, and to obtain the best results the timber treated should be as dry as possible, as the absorption and penetration is considerably greater under these conditions than when the wood is wet or moist. The penetration into the wood is not so great with tars with a high content of free carbon as with those of a low free-carbon content.

The amount of preservative required per unit of area with the brush method is greater for tar than for tar distillates. The exact amount can not be stated by a figure universally applicable, because the condition and kind of wood, as well as the quality and kind of tar, affect the results. However, it can be said that a gallon of hot tar will cover approximately 200 square feet of the surface of smooth, dry poles. More tar is absorbed by dry, rough-sawed timber, and a gallon of hot tar will cover 150 to 200 square feet of such surface.

Dead Spider in Web Puts Telephones Out of Commission

An industrious, home-loving spider spun herself a web between two telephone cables in a metal terminal box in Kalamazoo, Mich., recently, and then lost her life when one of the subscribers on a party line telephoned to the corner grocery to order a bar of laundry soap and a fly swatter.

And that wasn't all! Dampness filled the air, and the web, with Mrs. Spider dead in the center of it, shorted all the telephones on both circuits.

Here's the way the Kalamazoo Gazette tells the story:

When Mrs. T. C. Kingsbury, 1403 Myra street, tried to get Central she could hear other voices on her line. The complaint was recorded by the repair clerk as "cross talk on 2053-W." A few minutes later more complaints were made along the circuit and John Kelly, chief testman for the telephone company, was called upon to locate the trouble.

By means of a galvanometer, a sensitive instrument used by the testmen to measure resistance and locate trouble along cables, the approximate point of the "short" was finally determined and Walter Scheller, cable troubleman, was sent to the vicinity of Hotop and Charlotte avenues.

After making several tests, Scheller came to the conclusion the trouble was in the black terminal box on a pole at the corner. Here he was able to converse with his chief by "plugging" in at the box.

"I can find nothing wrong here," Scheller informed Kelly. "Your galvanometer must have the pip. There isn't anything in this box but an old web and a dead spider," he declared.

"Well brush down the spider web and try some other place along the cable," instructed Kelly.

Scheller swept Mrs. Spider and her web away with his hand.

"How do you hear me now?" inquired Scheller.

"Fine," announced the chief tester, "the line is as clear as a whistle. Come on in."

Belgium Telephone Business Increases During 1922.

Telephone service in Belgium on March 31 comprised 310 central stations, connecting 431 public telephone stations and 65,011 subscriber stations. There were 605,821 kilometers of telephone line in service.

Although no statistics are given for the calls from subscriber stations, this may be approximated from the following table, which compares the traffic of 1922 with the that of 1921:

Traffic items	1921	1922	Increase
Local calls from pay stations ..	261,395	342,273	80,878
Long distance calls (domestic)	625,376	770,320	144,944
International calls (including transit) ..	202,231	[1]219,815	17,584
Receipts in francs ...	8,858,509	[1]11,212,765	2,354,256

[1]Approximate.

Ocean Telephone Cable From England to Holland.

The establishment of telephonic communication between England and the Netherlands is expected during the early part of this month, as the result of the completion of an ocean telephone cable extending from Aldeboro, England, to Domberg, on the Dutch coast.

From Domberg the trunk lines will form a connection through the Middleburg exchange with the long distance lines of Holland.

This cable, owned jointly by two countries, was planned in the early part of 1914, but the outbreak of the war prevented its completion until the present date. Up to the present time there has never been any telephonic communication between England and Holland.

Illinois Bell Appropriations Close to Ten Millions.

The board of directors of the Illinoise Bell Telephone Co., at the regular monthly meeting, July 26, approved an expenditure of $1,200,417 for new plant in the city of Chicago, and $780,244 for Illinois outside of Chicago, making a total of $1,980,661. The total approved this year is $9,335,739.